TECHNOLOGY DEPT.

FEBRUARY
1935

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FLEET OWNER

DETROIT

THE FERGUSON PUBLISHING CO., 90 WEST ST., NEW YORK, N.Y.

Devoted to the Better Operation and Maintenance of Truck, Bus, Taxicab, Passenger Car and All Automotive Fleets

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Retreading in UPS Fleet
By W. D. Bixby

Analyzing That Fleet Analysis
By Clinton Brettell

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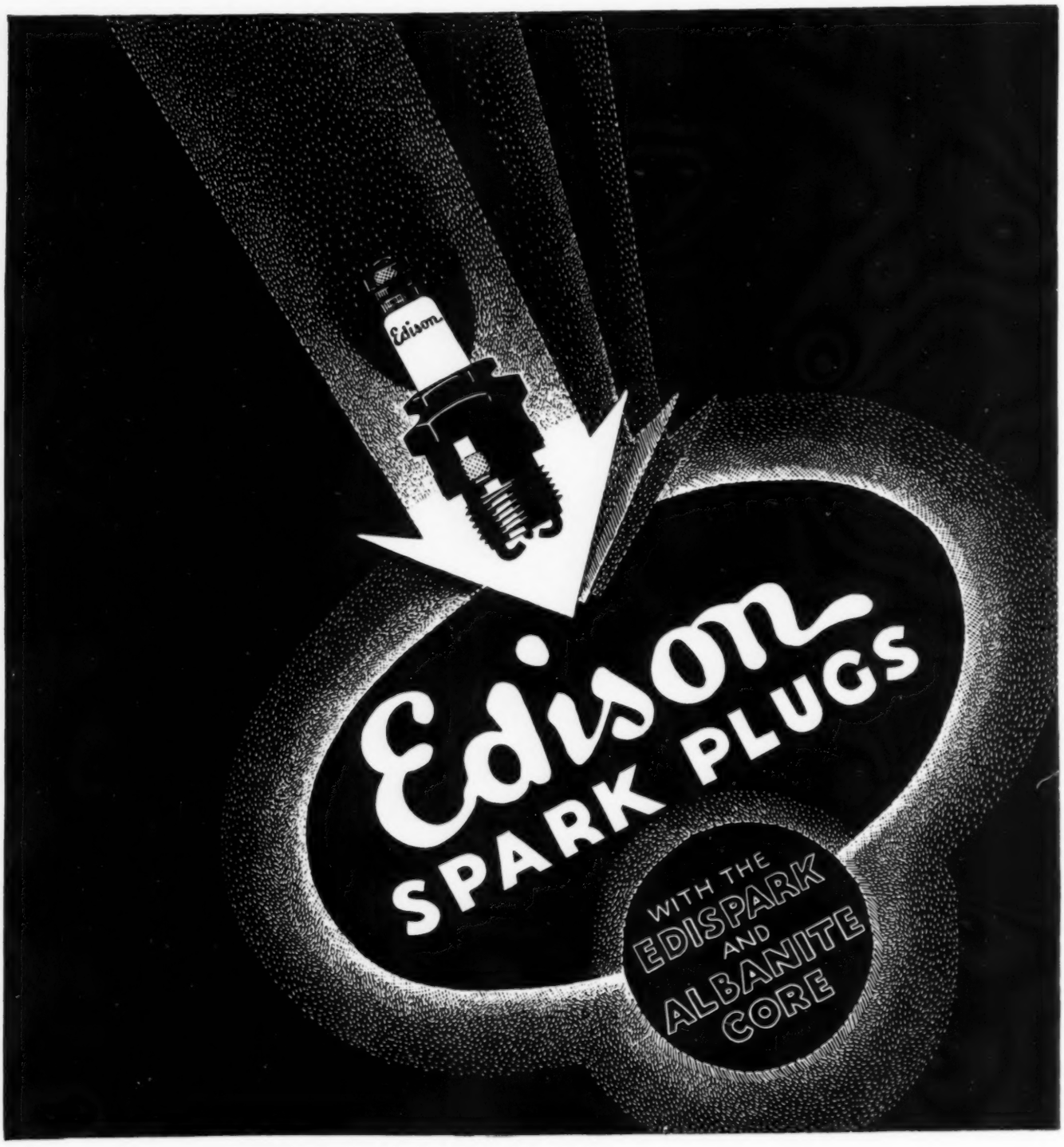
By H. Clay Fischer

Synthetics—An Economical Job
By Edward Chadwick

A Truck Resumé of 1934
By A. J. Brosseau

—and Our Usual Departments



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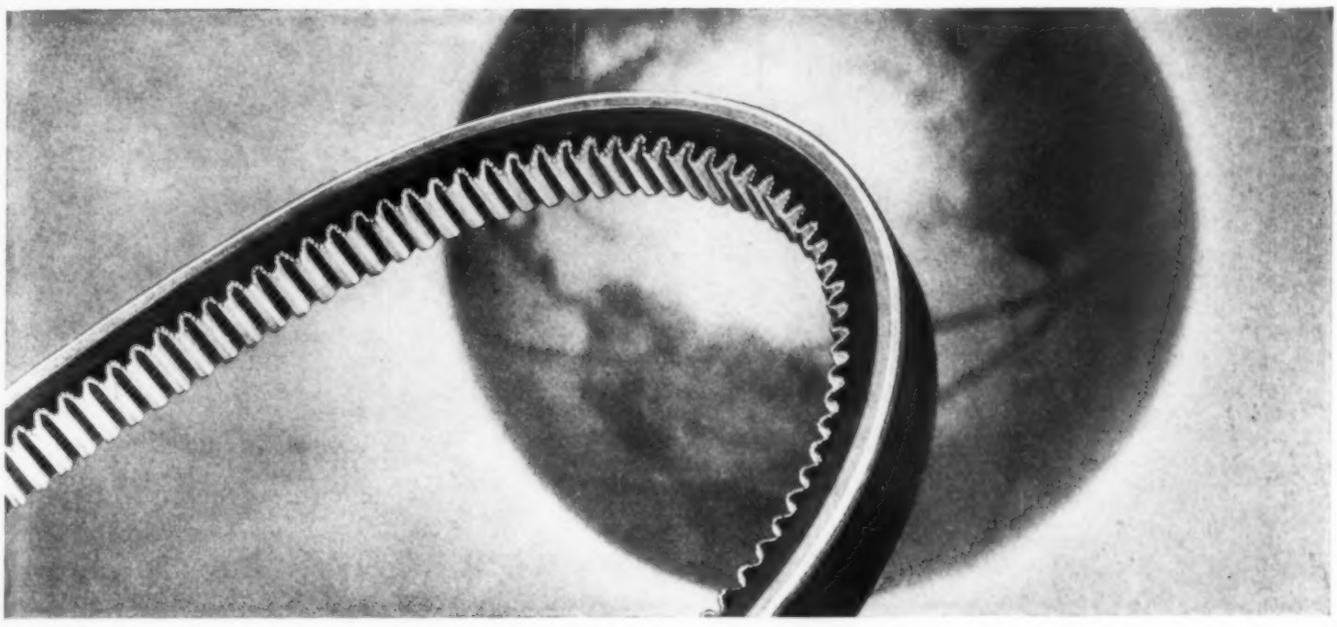

● Dayton Fan Belts are *distinctly different* from any other fan belt. Their exclusive and patented construction gives these famous belts many advantages found in no other fan belt.

They are the only V-type fan belts built specifically to bend without distortion. They are tough, rugged, and run at high speeds without internal friction or heating. They do not stretch—adjustments are seldom necessary. They are accurate and stay accurate. They require less tension, therefore they are easier on bearings.

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The World's Largest Manufacturers of V-Belts

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Manufacturers of Cog-V, Plain-V, and Flat Type Fan Belts, Dayton Red Tube Radiator Hose, Dayton Cog-Belt and V-Flat Drives, and the famous Dayton Thorobred Tires and Tubes

Keep 'em willing to

turn in lower costs per mile

YOUR TRUCKS are willing to serve you efficiently and economically. Encourage them by giving them fuels and lubricants that have the spirit and ability to help.

Operating costs per mile and maintenance costs per vehicle are the two expenses that show whether there's profit or loss in your fleet. Texaco has cut both of these expenses for many of the country's largest fleet operators.

***Fire-Chief* Gasoline, Texaco Motor Oil, Marfak, Thuban, all have a vital part in**

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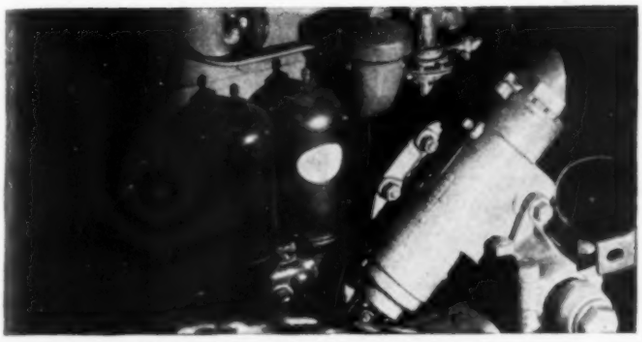

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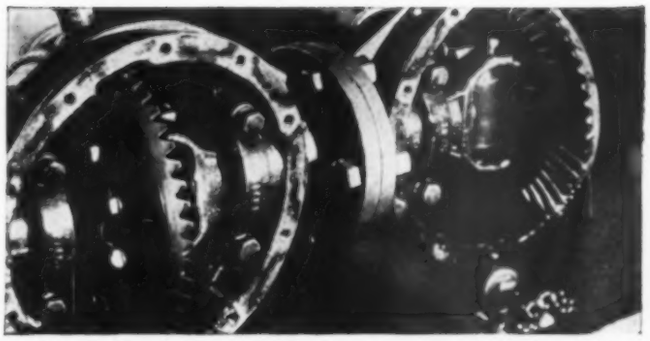

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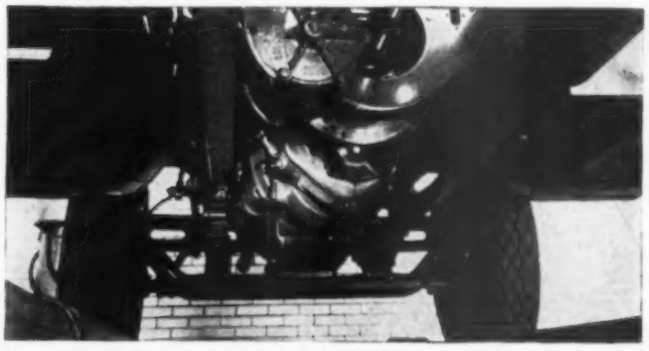

Specialized Texaco chassis lubricants cut maintenance costs

any fleet operation. They have had experience in all sorts of haulage. They are backed by a technical service which can analyze your fleet operations and check up on what your trucks are doing.

Texaco's newest aid to truck fleet efficiency will help you to lower your consumption of gasoline and oil! Ask a Texaco representative to tell you about truck fleet efficiency.

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Nation-wide distribution facilities assure prompt delivery

Texaco Marfak promotes safety in steering connections

Texaco Marfak lasts thousands of extra miles in wheel bearing

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DRIVING snow — stinging sleet — loaded truck off the road. And a rear tire flat, to boot!

That's the time your service man needs a husky jack—the *Blackhawk CB9,* a sturdy 7-tonner for big jobs. Here's a jack with guts—to h'ist 'er up *pronto* —load and all. A time and labor saver.

This Blackhawk is low enough to get under—has plenty of lif'-up to raise wheel and tire clear off the ground. It's a *plenty* easy job — with *dependable* hydraulic power — always under positive control.

Blackhawk jacks are *that* way. Dependable on the road—give unbeatable shop service on all tough jobs — bending—straightening—pushing — wherever you need power-plus —effortless operation — safety— rugged strength.

For latest jack dope — talk to your Jobber salesman about Blackhawks.

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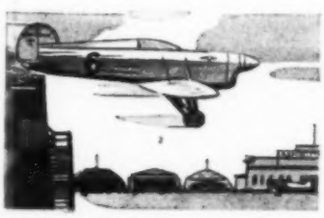
—Blackhawk's distinguishing mark of quality on hydraulic equipment. Jacks for cars, trucks, buses —special jacks or remote control for snow plows, road machinery, and industrial equipment.

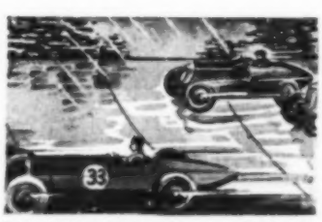
BLACKHAWK HYDRAULIC JACKS

Differences of opinion on almost every subject under the sun—but only one world-opinion about spark plugs. Entering their 25th year, Champion Spark Plugs outsell all others all around the world.



CLEVELAND—*Lee Miles, piloting a Champion equipped M & A Special, turned in the outstanding performance of the National Air Races by winning six events, placing up with the leaders in three others and capturing the L. W. Greve Trophy. Convincing proof that champions use Champions.*

FRANCE—*A. Varzi used Champions in his Alfa-Romeo to win the Grand Prix of Nice, a thrilling race through the streets, demanding maximum engine performance and unusual driving skill. P. Etancelin in a Maserati was second and Count Trossi was third. All used Champions.*



ENGLAND—*F. W. Dixon won England's premier racing event, the Brooklands 500 Mile Race, in a heavy downpour that called for superb driving and the highest engine performance and stamina. His Riley was Champion equipped, as was the Riley that E. McClure and A. Von der Becke drove to second place.*

PHILADELPHIA—*In a year filled with record breaking outboard events practically every major race was won with Champion Spark Plugs. For example, in the N. O. A. championships, Champions won every race in all classes and divisions, setting four new world's records.*

KEEP ENGINES YOUNG • TEST AND CHANGE SPARK PLUGS AT REGULAR INTERVALS

NRA CODE APEM 34-01

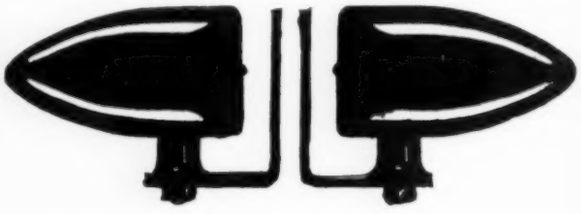
4 SIMPLE PROVISIONS

which would immediately wipe out the prejudice against trucks on our highways, increase safety, and remove occasion for suggested legislation to reduce body sizes—which would make trucking unprofitable.

1. **A stop and tail light in order.**
2. **Lights indicating body outline.**
3. **Clean and visible license plates.**
4. **A TURNSIGNAL which informs others *BEFORE A TURN IS MADE.***

WHY WAIT?

Write for full information



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Officially approved by all States requiring turn signalling equipment

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CORPORATION

400 E. RITTENHOUSE ST. (Germantown) PHILA., PA.

The

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners who maintain their own Repair and Service Shops and devoted to the better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

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GMC

THE . TRUCK . OF . VALUE

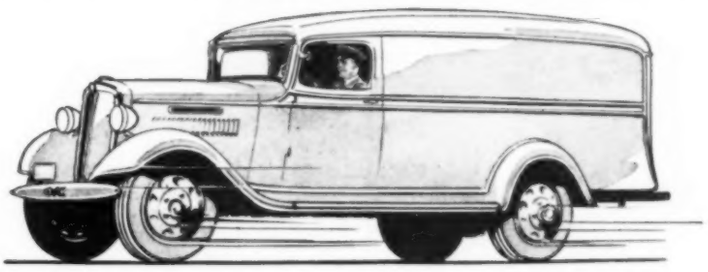
47

Cost-Reducing Features

- far more than other trucks

in the

1½ - 2 ton field



HERE'S the many-feature quality truck. Here's the truck that thousands of the country's shrewdest business men are selecting for a number of very definite, very practical reasons.

Seasoned truck buyers know that initial price is but a small part of truck cost—that operating and upkeep costs are far more important in judging truck value. The truck that does more work at lower cost, that requires less upkeep and that out-lasts is naturally the one they want.

Consider the many features of this GMC 1½-2 ton truck and you will realize why it out-performs and out-earns. On 47 counts—every one of them important and 10 of them exclusive—the GMC *is a more pronounced value.* It excels with latest type Lockheed hydraulic brakes, economical centrifuse brake drums, unusually large brake linings, greater horsepower, greater sustained torque, and full-floating axle with straddle-mounted pinion, to cite but a few of its superiorities.

Small wonder the General Motors Truck Company, the world's largest manufacturer of commercial vehicles exclusively, offers it as the truck of value, the truck that returns to the owner far more in work done and profits earned.

See this 1½-2 ton worker and earner. Judge its value in your own sound way. Or if your hauling needs call for trucks or trailers of greater capacity, look first to the modern General Motors Truck line for downright value. Capacities range from 1½ to 22 tons.

Revolutionary Dual-Performance Axle in 2-3 ton GMC

This new advanced truck feature provides a high-high gear (5.14 to 1) for fast movement on the level at economical engine speed and a low-high gear (7.15 to 1) which assures improved performance with heavy loads on hills or where the going is hard.

A TYPICAL VALUE FACT

One of the exclusive quality features of the GMC 1½-2 ton truck that reflects itself in more work done and more profit earned is Greater Payload Capacity. *Compared with one leading competitive truck, for instance, it has 10½% more, compared with another 15% and compared with still another 36%. And remember that is but one of 47 important advantages.*

GENERAL MOTORS TRUCKS & TRAILERS

1½ - 22 TONS

GENERAL MOTORS TRUCK CO. **Time Payments Available Through Our Own Y.M.A.C.** **PONTIAC, MICHIGAN**

TRUCK TIRE KNOWLEDGE

THAT IS SAVING REAL MONEY FOR HUNDREDS OF AMERICA'S LARGEST OPERATORS

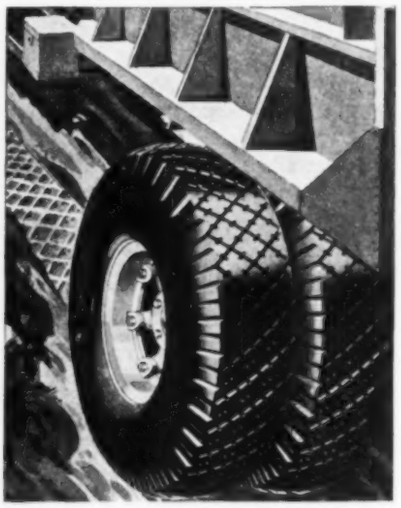
General builds the most complete, most highly specialized line of truck tires in the business.

General Tire Dealers are factory-trained truck tire experts with wide experience and accurate knowledge in fitting the right type and size of tire to every kind of job.

This combination is worth real money to you. If your job is tough, call in the General Tire dealer and let him prove these statements.

The General "Special Commercial" for light trucks in city and suburban service. The only real truck type tire built in light delivery sizes—to replace passenger type equipment.

The General Heavy Duty Highway Balloon is built for speed and long haul work—for lower cost highway transportation of all freight.



The General Heavy Duty Traction Balloon is made to order for construction work and all other heavy hauling where the going is tough.

The General C. D. (*right*) is built expressly for city delivery service, for trucks that stop and start often. Among other features are the sidewalls, buttressed against curb bruising and chafing.

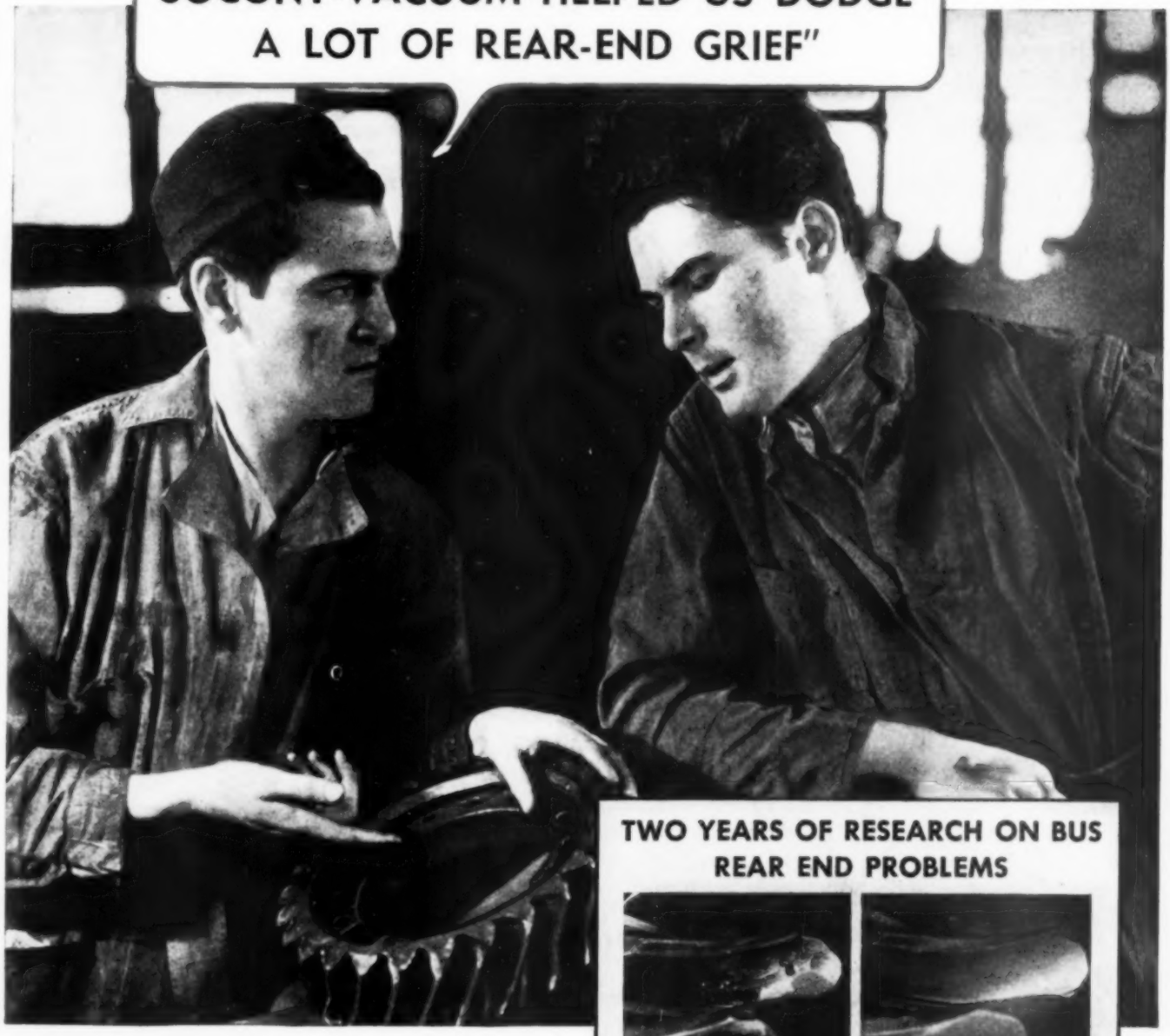
Generals cost less per load-mile because:

1. Generals are stronger tires—additional full-width plies of powerful cord are anchored bead to bead—with no "idle" plies—no floating breaker-strips.
2. Generals are cooler tires—they flex uniformly without that heat-producing "hinging action" of ordinary breaker-strip tires.
3. Generals have "compact rubber" treads—their construction keeps the tread rubber compact and compressed so that it wears slowly and gives more miles.

FREE this valuable booklet on how to get more service from your truck tires. Write to The General Tire & Rubber Company, Akron, O.

GENERAL TRUCK TIRES

"WHERE I WORKED BEFORE... SOCONY-VACUUM HELPED US DODGE A LOT OF REAR-END GRIEF"



TWO YEARS OF RESEARCH ON BUS REAR END PROBLEMS

PICTURES SHOW two identical gear wheels run under identical conditions with different lubricants. Wear, pitting and corrosion varied as much as 900 per cent. One of many studies.

Here's how Socony-Vacuum helps Fleet Operators make Real Savings with Scientific Lubrication

IT'S SURPRISING how often Socony-Vacuum men have been able to help reduce rear-end troubles in fleets which operate under severe service conditions.

After a two-year study of rear-end trouble from the lubrication end of the problem, we've developed a Mobilube that informed fleet operators consider the best all-'round gear lubricant available.

In addition, the results of our thorough-going study are always at your service. Call or write any of the Socony-Vacuum companies listed below, and one of our engineers will gladly lay the facts before you.

SOCONY-VACUUM OIL COMPANY, INC.

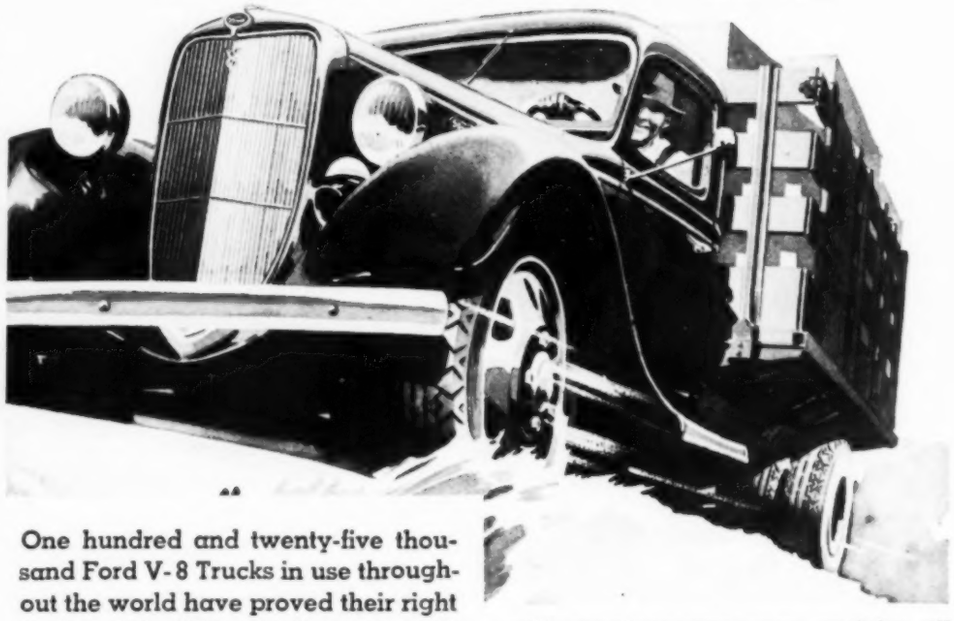
STANDARD OIL COMPANY OF NEW YORK • VACUUM OIL COMPANY • MAGNOLIA PETROLEUM COMPANY • GENERAL PETROLEUM CORPORATION OF CALIFORNIA • WHITE EAGLE OIL CORPORATION • LUBRITE REFINING CORPORATION • WADHAMS OIL COMPANY • WHITE STAR REFINING COMPANY.

MOBILUBE

MOBILGAS . . MOBILOIL . . MOBILGREASE

SOCONY-VACUUM

THE NEW 1935 FORD V·8 TRUCK



THE ONLY TRUCK AT ANY PRICE THAT GIVES YOU ALL THESE FEATURES

New Cab

Welded all-steel construction. Real passenger-car comfort for the driver. Adjustable driver's seat. Passenger-car-type instruments grouped directly in front of the driver. Safety Glass, standard equipment throughout. Triple ventilation includes: (1) Clear-Vision Ventilation in door windows; (2) easy-opening windshield; (3) large screened cowl ventilator. Seat width increased to 48¾ inches. Interior of cab completely lined.

New Brakes

Cast alloy iron drums with integral cooling ribs. Drums will not "bell-mouth." No "fading," even when making a series of quick stops in rapid succession. New brake mechanism makes stopping quicker and smoother with heavy loads. Longer life between adjustments.

New Clutch

New design assures much longer clutch life, minimizes slippage and permits smoother engagement. Lower pedal pressure at idling speed. Plate pressure increases as speed of engine increases. Improved ventilation makes clutch run cooler. Diameter increased to 11 inches. Larger frictional area.

Improved Cooling

Larger water pump impellers. Six-blade 15½-inch fan. Wider radiator, 15% more radiating area.

New Crankcase Ventilation System

Directed-flow crankcase ventilation reduces corrosion and oil dilution by removing fumes.

V·8 Performance with 4-cylinder Economy

The Ford V-8 Truck engine develops more than 80 horsepower. Uses no more fuel than a "four." Dual carburetor and dual intake manifold. Light-weight, cast alloy pistons. Exhaust valve seat inserts. Heavy-duty copper-lead connecting-rod bearings.

Low-cost Engine Exchange Plan . . . Full-floating Rear Axle with Straddle-mounted Driving Pinion . . . Full Torque-tube Drive Permits Free-shackling of Semi-elliptic Rear Springs . . . Deep, Rugged Frame with no "Kick-up" . . . Oilless Front Spring Shackles . . . Baked Enamel Finish . . . Deep-skirted Fenders Match Colors of Hood and Cab.

One hundred and twenty-five thousand Ford V-8 Trucks in use throughout the world have proved their right to the claim "America's great truck value." Because of this widespread acceptance, the entire production of Ford Truck engines is of the V-8 type.

To the proved design of the Ford V-8 Truck have been added many new features. But from your point of view, the most important question is: "What will this new truck do for me?" Your Ford dealer is ready to answer that question right NOW. He is so proud of this new truck . . . he is so confident of V-8 performance and V-8 economy that he will gladly arrange an "on-the-job" test for you if you are in the market for a new truck. Ask your Ford dealer to let you try a 1935 Ford V-8 Truck with your own loads . . . over your own routes . . . with your own driver at the wheel.

Then ask the price! Such performance and economy at a price so low will convince you once and for all that this 1935 Ford V-8 Truck is now more than ever AMERICA'S GREAT TRUCK VALUE!

PRICES

TRUCKS

131½-inch Chassis	$500
131½-inch Chassis with Closed Cab	595
131½-inch Platform	650
131½-inch Stake	675
131½-inch Panel	760
131½-inch Dump Chassis	530
131½-inch Dump Chassis with Closed Cab	625
131½-inch Dump Truck	800
157-inch Chassis	525
157-inch Chassis with Closed Cab	620
157-inch Platform	690
157-inch Stake	735

COMMERCIAL CARS

112-inch Closed Cab and Chassis	$435
Drive-away Chassis	360
112-inch Panel Delivery	565
112-inch De Luxe Panel Delivery	580
112-inch Sedan Delivery	585
112-inch Station Wagon	670
112-inch Pick-Up	490

(All prices f. o. b. Detroit.. Convenient terms through facilities of Universal Credit Company.)

ALSO A NEW LINE OF SMART, FAST FORD V·8 COMMERCIAL CARS

VOL. 14
NO. 2

FLEET OWNER

FEBRUARY
1935

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

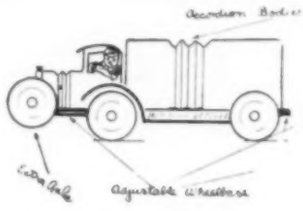
GOSSIP AND GUESS?

● Sharp-eared and sharp-eyed newsmen scanned the text of the President's message to Congress, as the Chief Executive addressed the legislators from the dais in the House recently. . . . A portion of that message is quoted herewith: *"Among the subjects that lie immediately before us are the consolidation of Federal regulatory administration over all forms of transportation."* And as the President thus spoke, he added these words to that sentence: *"including the land, the sea and the air"* . . . It was then that alert newsmen made notes more rapidly and one Washington "observer" in commenting upon the added clause, styled it as being of "transcendent significance," the N. H. U. C. tells us. That's but putting it mildly, we're afraid.

●

LITTLE MAN, WHAT NEXT?

● What looks like the latest bit of anti-truck propaganda, comes from no less a personage than Robbins B. Stoeckel, former Motor Vehicle Commissioner of Connecticut. In a recent issue of the New York *Herald-Tribune*, Mr. Stoeckel, who is now associated with Yale University, goes on record to state that he thinks this would be a swell time to legislate large trucks and buses off the highways, because, in his mind, they constitute a "mental" hazard to John Q. Public, the front-seat driver . . . To make his pill a bit less bitter for us to swallow, he recommends "more but smaller" commercials and buses, because while it's quite difficult to immediately improve *all* of our highways, it's *much* easier to at once reduce present (and future) vehicles in size, to ameliorate that "hazardous" condition . . . The addition of the phrase "as a temporary measure, at least" by Mr. Stoeckel, sort of lets us down easy, but our industry is such that we don't believe *anyone* will be able to get away with so raw a piece of legislation . . . For there are far too many such vehicles at present in use, and Mr. Stoeckel seems to overlook the fact that they are not built like accordions; neither are they made of rubber; and that no "Alladin" will be forthcoming to rub his lamp and cause an overnight shrinkage in the size of our trucks and buses . . . We wonder whether or not Mr. Stoeckel is familiar with the Standard Code of Maximum Dimen-



sions for motor vehicles adopted by the American Association of State Highway Officials? And with the fact that these dimensions were also approved by the Joint Committee on Transportation, which included representatives of both the motor and rail industries? If he is (and he certainly should be) it is somewhat surprising that his latest move would reflect such a retrogressive attitude . . . Mr. Stoeckel's services as a Motor Vehicle Commissioner were excellently performed and for this work he has many admirers. As "Research Associate in Transportation" for Yale University (if this may be taken as a sample of his work) we doubt very much whether he will long retain the splendid esteem which he now enjoys . . . Let us here go on record as unqualifyingly refusing to subscribe to such theories. Things are not so bad as they are painted, and legislating trucks and buses off the highways because of a comparatively few timid drivers, does not make good sense . . . Neither will this inane "solution" relieve the hazard "problem," which in a great many minds does not exist at all.

EMPHASIZING THE IMPORTANCE

● Fifty per cent of the fleet operators reporting in our recent survey on "Electrical System Failures" listed "Condensers" among their most troublesome units. If you've ever had a condenser quit suddenly and leave you stranded without ignition, you'll no doubt understand just why other operators complained about them. Just such a thing happened to the writer recently and drove home the following lesson: *No matter how good your mechanics might be, the lack of proper equipment is costing you money.* In our own little experience, it did not take long to learn, by a process of elimination, that either coil or condenser was defective. But to find out which it was, without going out and buying new ones, was what consumed the time. Much chasing around was done, both among fleet garages and service stations, until we located a shop that had an electrical testing set-up, after which the defective condenser was easily spotted. (The coil tested o. k.) Now, this is not a sermon to make you more equipment-minded, although it emphasizes the importance of proper shop equipment. It also emphasizes the fact that *quality* replacement parts should be purchased and if heavy-duty ignition equipment is available, especially designed for fleet operation, don't let a few pennies stand between you and its possession. And another thing, spare condensers take up so little space and represent such a small investment, that many vehicles are carrying extra ones as spares. An extra coil under

(*Please turn to next page*)

H. Clay Fischer
Editor

YOU SEE IT "FIRST" IN FLEET OWNER

The Editor's Column » »

(Continued from Page 13)

the hood wouldn't do any harm either, but don't say that we ever urged you to carry a spare crankshaft, will you?

•

A GOOD RESOLUTION

● Recently, the American Farm Bureau Federation adopted a concise resolution on "Highway Appropriations" at its recent annual meeting . . . The text of this resolution, which was adopted in addition to a general resolution on "Taxation," follows: "*That we affirm our previously expressed position in opposing the levying by the Federal Government of gasoline taxes and that we again reiterate our opposition to the diversion by States of gasoline tax revenue for other purposes than the building and maintenance of highways.*" We think that's a swell resolution. What do YOU think?

•

IT IS TO LAUGH

● A Chinese official, recently calling on the National Highway Users Conference, was observed to indulge in a full-sized American laugh, when Director Britton told him that state restrictions governing size and weight of motor vehicles are far from uniform in this, the land of the free . . . One of the things responsible for an even more hilarious outburst, was the explanation of the Texas law, where, for example, a truckload of only 7,000 pounds is permitted, unless the truck is delivering goods to or from the nearest railroad station, in which case a load of twice that weight is permitted . . . After his laugh had subsided, the gracious Chinese gentleman remarked that he did not understand it, and called for a repetition, whereupon he embarked upon another impulse of laughter . . . Darned clever people, these Chinese.

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"PAINT"—A HOUSE-ORGAN

● We've all heard the story about the dumb mechanic who thought that a house-organ was a musical instrument; that gag has long outlived its usefulness . . . What we started out to tell you, if you'll pardon the humorous introduction, is this: Volume 1, Number 1 of a *new* house-organ devoted to paint, painting problems and painting practices has just been received at our desk. We hope to receive it regularly. It is sponsored by Sherwin-Williams, whose products "cover the earth," as the advertising man would say . . . As a general rule, most house-organs attempt to *oversell;* this one does not. Besides, it includes a beautiful center-spread of art photographs that would do any photographer proud. These represent facts and scenes *outside* of the paint industry and are certainly worth scrutinizing . . . We know that you, too, would like to receive this regularly, and will be glad to use our influence to get you put on their mailing list, if you but say the word. . . . No coupons to clip; no box-tops to send in. Just drop us a line.

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DON'T MAKE IT YOURSELF

● Not often does a book review find its way into this column. Here's one, however, that the practical operator should not overlook, since most fleet men are inclined to make up lots of things in their own shops, from wheel-pullers to truck bodies. But before going ahead, don't get the impression that we are urging you to make your own anti-freeze, metal-polish, paints or lubricants. Manufactured products are undoubtedly *better* and cheaper than anything of the bathtub variety that even our most ingenious home-maker could produce . . . The name of the book is "*Practical Everyday Chemistry*" and it tells how to make almost anything you can think of, from gin to headache powders (you'll probably need the latter if you make the former) . . . There are several chapters in this veritable encyclopedia that should

be worth a great deal to every fleet operator having his own shop—you don't need a laboratory. Twenty pages of information, for instance, on how to do your own plating—copper, brass, tin, zinc, nickel, chromium, cadmium, etc. . . . There's a chapter on cleaners for everything from upholstery to straw-hats. There's another on polishes and abrasives; one on cement and concrete; others on lubricants, finishes, adhesives, photography and cosmetics . . . The last-mentioned should be interesting to the ladies (God Bless 'em) and what will they say when they learn that lipstick is made from grease off a sheep's back? And if you are losing your hair, there's a preparation for baldness—and one for "athlete's foot," too . . . Perhaps we have been a bit over-enthusiastic in describing this new book. One reviewer says that "it tells how to make everything except love" . . . And here is the catch: It sells for $2. We'll be glad to get a copy for you, if you include 15c extra for postage. The binding is good and there are over 300 pages in it, but no pictures.

NO, THEY DON'T COME OUT

● Elsewhere in this issue you will read an article entitled "*Are Inserted Valve-Seats Here to Stay?*" Before some quick-thinking wisecracker remarks "Here to stay, but not to stay put," let us beat him to it. . . . Therefore we will go on record to say that all of us operators can be thankful for the development of the inserted valve-seat. It has reduced the frequency of valve-and-carbon jobs by at least half—in many cases more . . . And if you don't believe it, read the results of our recent survey and you will find out that most of them *do* stay put. The exceptions are rare, and as the celebrated Confucius would say, "It is the exception, my friend, that proves the rule!"

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USED THE WRONG METHOD?

● A local firm which specializes in tire retreading for fleet operators, takes us to task because we published the results of a recent "survey" on the subject, made through the medium of our Question-of-the-Month Club . . . He claims that, unfortunately, most of the operators who were good enough to participate, did not choose the *right* method (the one which he uses, of course) and therefore it is not to be wondered at, that they could not report more satisfactory results with their retreads than they did . . . Well, we are willing to be shown, and for that reason, we are going to conduct another "survey" on the subject—this time by mail. And we'll be glad to publish the results of it, if it is anything different than what has been printed before . . . So-o, if you are one of the chosen few operators that will receive a *new* questionnaire on the subject, we hope you'll participate, and help the good brother prove to us that we were wrong—if we *were* wrong.

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MONTHLY JOKE

● This page would not be complete without our usual humorous anecdote. This one was heard at the New York Auto Show . . . A young couple were standing before and admiring a huge Diesel engine on display. The sweet young thing pointed to the fuel pump and asked her escort what it was. He replied "That's the magneto, dear, can't you see it says 'Bosch' on the name-plate?" . . . Although we were strongly tempted to correct him then and there, we did not. But we did go home with the full realization that a good product, consistently advertised, remains indelibly impressed on the minds of even the most uninitiated of laymen.

To *the* RESCUE *of the* POLICE *!*

CITY OF LONG BEACH

LONG BEACH, CALIFORNIA

December 20th, 1934.

Motorola Sales & Service Company,
741 Towne Avenue,
Los Angeles, California.

Attn: Mr. E. H. Fluhr

Gentlemen:

We are pleased to write you this communication in answer to your request for an expression regarding our experience with the "BOSCH VOLTAMATIC GENERATOR" on our Police Cruisers.

First we want to state that we are operating in this service.

We not only have receiving facilities but broadcasting arrangements as well.

Our cars cruise at speeds as low as seven miles per hour and when on chase attain speeds as high as eighty miles per hour.

Out of eight cars we were changing batteries at the rate of three per day, using what was considered the best available generator equipment, not including Bosch however.

We are using 200 ampere hour batteries.

We finally adopted the "BOSCH VOLTAMATIC GENERATOR" as equipment on all of our Police Cruisers, and now after having them in service for three months we are pleased to report that we have not had to change a single battery.

We can conscientiously recommend the "BOSCH VOLTAMATIC GENERATOR" as the answer to the generator and battery problem on Police Cruisers.

Yours very truly,

CITY OF LONG BEACH

Chas. P. Mertz

CM-P

How Bosch VOLT-O-MATIC *Generators are lowering costs for the City of Long Beach, California*

MR. CHARLES P. MERTZ is Automotive Superintendent of the City of Long Beach, Cal. On December 20th, 1934 he wrote a letter that is of major importance to every bus and truck operator interested in maintaining schedules and reducing maintenance costs.

> **"On our police cruisers," writes Mr. Mertz, "out of 8 cars we were changing batteries at the rate of 3 per day, using what was considered the best available generator equipment, not including Bosch however. We are using 200 ampere hour batteries. We finally adopted the Bosch Volt-O-matic Generator as equipment on all of our police cruisers, and now *after having them in service for three months,* we are pleased to report that we have not had to change a single battery."**

On buses, trucks and police cars the country over, the Bosch Volt-O-matic Generator is helping to reduce repair bills and maintain schedules, because it protects batteries against the twin abuses of overcharging and undercharging.

The Bosch Volt-O-matic Generator automatically regulates the amount of current it produces according to the ever changing needs of the battery. When the battery drain is heavy it automatically puts a heavy charge into the battery. When the battery drain is full and the current needed is small, it automatically cuts down the current supply to a harmless trickle.

It will pay you to investigate how the Bosch Volt-O-matic Generator ends the danger, delay and expense of road breakdowns caused by battery abuse . . . how it assures a more powerful starting spark even in cold weather . . . how the generator itself, and not the battery, carries the load of all current consumers when the engine is running . . . how the Bosch Volt-O-matic Generator reduces maintenance costs in many ways . . . Mail coupon for full information.

● *The makers of Bosch products have always taken pride in creating, designing, building and selling products superior to those commonly in use. Proven leaders in their fields, these products are built up to a high standard of quality and not down to a price.*

BOSCH *VOLT-O-MATIC* GENERATORS

UNITED AMERICAN BOSCH CORPORATION, SPRINGFIELD, MASS. SEND BOOKLET ON SUBJECTS CHECKED:

PRODUCTS manufactured by ROBERT BOSCH A.-G., bear trademark shown above. Sold by United American Bosch Corporation.

PRODUCTS OF ROBERT BOSCH A.-G.

- ☐ Bosch Volt-O-matic Generators
- ☐ Bosch Neverstall Windshield Wipers
- ☐ Bosch Semaphores
- ☐ Bosch Vibro-Balanced Horns
- ☐ Bosch Fog & Ditch Light
- ☐ Pyro-Action Spark Plugs

PRODUCTS OF AMERICAN-BOSCH

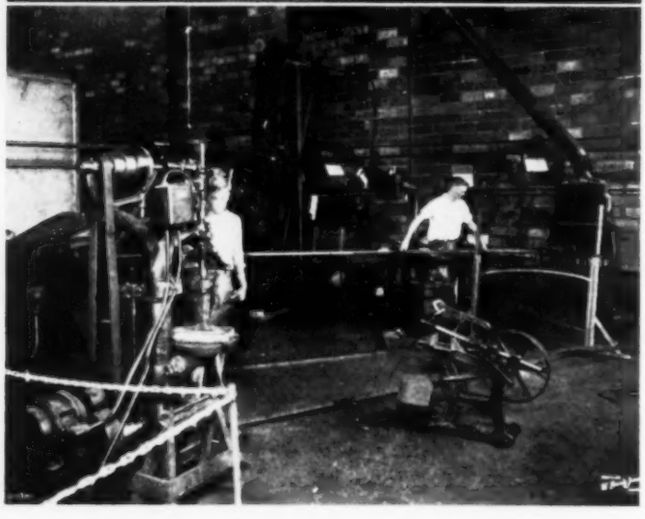
- American-Bosch Coils & Condensers ☐
- American-Bosch Car-Radio ☐
- American-Bosch Battery Chargers ☐
- American-Bosch Humidifiers ☐
- American-Bosch Home Radio ☐

(25)

PRODUCTS manufactured by the UNITED AMERICAN BOSCH CORP., bear the trademark shown above.

WRITE NAME AND ADDRESS IN SPACE BELOW

ON these two pages we present six photographic views of the Mayflower shops. On this side you see a corner of the paint shop at the top; a section of the company's own upholstery department, and the blacksmith shop at the bottom. Facilities are available for turning out two truck bodies a week, if necessary. You'll read more about this unusual body-building experience in the article which accompanies these excellent pictures.



Standardization Aero-Mayflower

An Interview With

Burnside Smith, Pres.,

Aero-Mayflower Transit Co., Indianapolis, Ind.

THE Aero Mayflower Transit Company, with headquarters in Indianapolis, Indiana, has had some very interesting experiences in building up its fleet of over one hundred motor vans and developing an efficient plan for its control and operation. The company is engaged exclusively in the long-distance moving of household and office furniture. Its vans travel all over the United States and across the borders into Canada and Mexico.

In its advertising, emphasis is placed on its coast-to-coast service. Recently a Mayflower van, for instance, transported a load of furniture from Boston to San Diego, a distance of approximately 3,500 miles. The company is represented by 320 warehouse agents located in cities all over the United States and in Canada. The first of these, the Baltimore Storage Company, was appointed in October, 1930.

Like so many well-organized, modern-day automotive fleet operators, the Aero Mayflower Transit Company has found that standardization of equipment pays. It makes its own standardized van bodies. The business was started in 1927 by C. M. Gentry, now vice-president of the company in charge of dispatching and drivers, with twenty-two motor vans, all of which were individually owned. Burnside Smith, president, joined the company in 1929, and soon thereafter it was decided that the company should *own* the equipment and operate it with its own employes. Each driver is now paid a weekly salary and also receives a bonus for special services rendered to shippers.

In 1929 the word "Aero" was added to the company name so it could be placed up ahead in telephone directories. E. S. Wheaton is treasurer and also in charge of sales and advertising and in control of the agency set-up, and Mr. Smith's son, John S. Smith, is in charge of maintenance and construction.

Up to January 1, 1930, various models and sizes of trucks were utilized, but it was quickly realized that a standardized unit was absolutely essential for efficient, low-cost operation. A special van body of 1,035 cubic feet size inside was adopted. Specifications for this body were carefully worked out and then, in order to exercise strict control at all times over the selection of high-grade materials and construction, it was decided to build these special bodies in the company's own shop at Indianapolis. The company even went so far as to establish a department to make special pads for lining the inside of the trucks and protecting individual pieces of furniture in transit.

An unusual method of thoroughly training men in

Slashes Costs In 100-Vehicle Fleet

»

And

John S. Smith, Supt.,

Aero-Mayflower Transit Company, Indianapolis, Ind.

•

correct loading and unloading practices has also been inaugurated. For the purpose, a double house across the street from the main office has been completely furnished, both upstairs and down, with approximately 1,600 cubic feet of furniture. This place is in the charge of an instructor who trains all Mayflower truckmen in correct methods as determined by long trial and practice, in packing linens, china, small articles, etc., and in loading everything into the van and then unloading and replacing everything properly into the house again.

New men, particularly, are thoroughly drilled by this instructor and are not released until he is satisfied each man is a competent furniture handler. This plan of training a new man under the supervision of an instructor, instead of placing him with most any driver in the fleet, is advantageous because the training is more exacting and also the new man won't be tempted to pick up the faults that one of the men down the line might possess. As a result, furniture that travels the long-distance route in Mayflower vans is provided with a protection that is hard to beat. That is one reason why Mayflower business is steadily increasing.

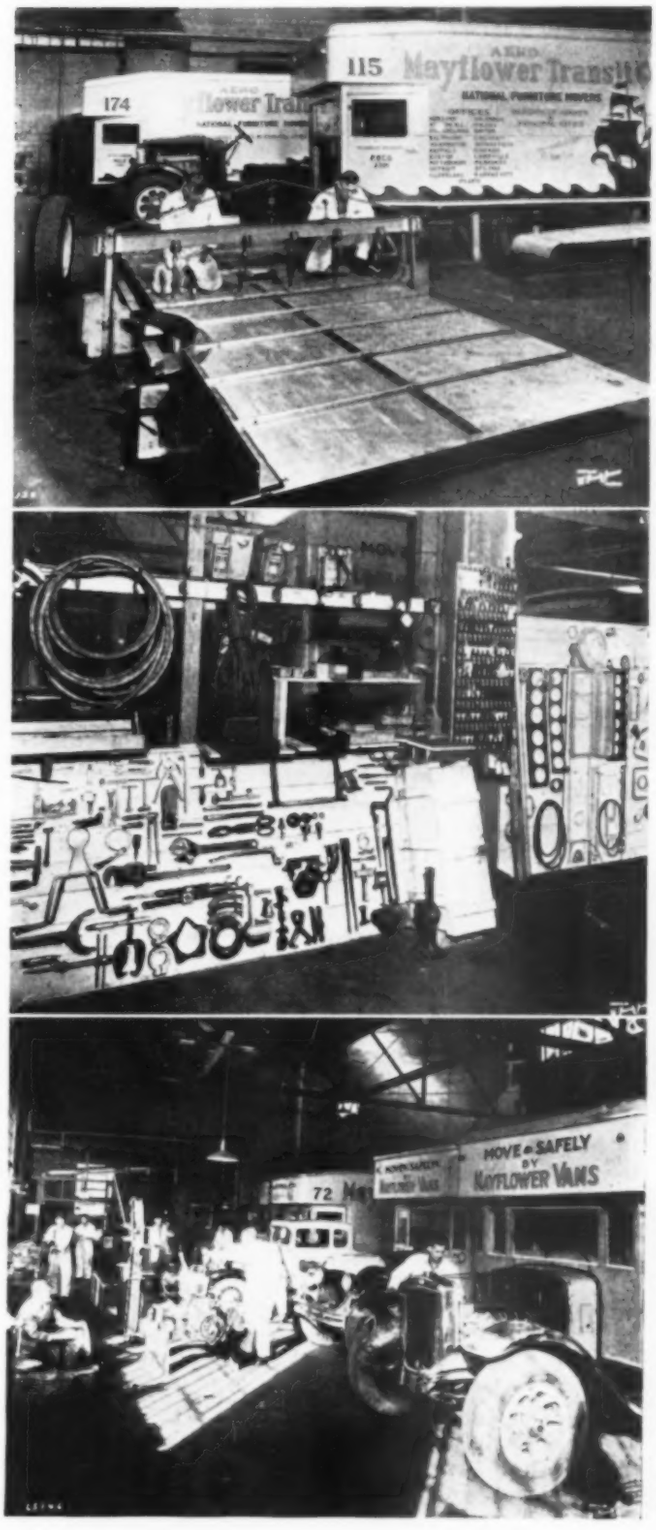
For the chasses it was decided to standardize on 3-ton Internationals because they found them economical to operate, and because these were specially fitted for use with the Mayflower standardized body. The country-wide company-owned service organization of the truck maker was also a factor in selecting the truck chasses, for no matter in what part of the country a Mayflower van may be operating, it is not far at any time from a factory branch equipped to give prompt service. Of the one hundred and more units owned by the Aero Mayflower Transit Company, fifty-eight are Internationals. Twenty additional 1½-ton Internationals for lighter loads were also recently added. Some of the vans have already traveled over 200,000 miles.

The shop and offices are located in a very attractive-looking brick building 120 feet by 140 feet in size. The offices are in the front of the building and are on the second and third floors. On the first floor of this front section is the pad manufacturing department and the stock and tool room. The shop proper is well lighted and is 120 feet by 120 feet in size. It is provided with a high-trussed roof and, of course, is without pillars or columns.

The shop is unusually well equipped for servicing and reconditioning trucks, building and painting bodies, and washing and repainting bodies already in service.

(Please turn to next page)

AND on this side you'll observe the body building department itself, in the foreground of the top picture; the two men are fabricating the side of a Mayflower body. The middle picture shows the tool-board, for holding special tools; you'll recognize many of them. At the bottom is shown a view of the general overhaul shop, which is well equipped and ventilated. Each van is completely overhauled after travelling 50,000 to 75,000 miles or more.



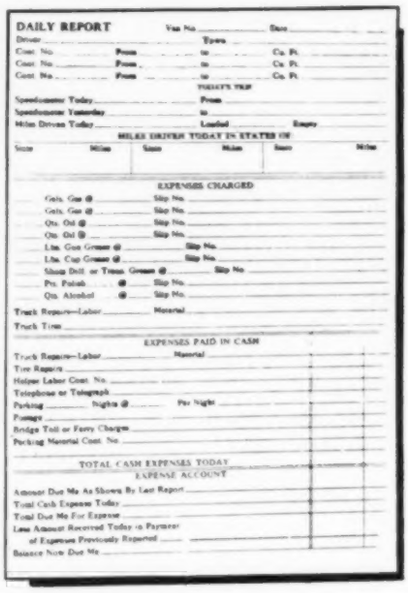
The equipment includes several types of up-to-date testing machines and meters, high-pressure cleaning and paint-removing machine, cylinder borer, inspection pit and wheel-aligning outfit, complete blacksmith and forge with trip-hammer and alligator shears, drills, grinders, several types of saws and wood-working machines, paint sprayer, etc. The paint shop is in a separate building 60 feet by 45 feet in size adjoining the big shop at the rear.

The shop personnel includes eight mechanics; four painters, three of whom can do striping and the artistic work required in painting the company's trade mark; eight body builders; an upholsterer and girl helper; stockroom clerk, who also makes record of time and job distribution charges; and an errand boy.

Facilities are available for turning out two bodies a week. As stated, the standard Mayflower body has an inside capacity of 1,035 cubic feet. Its overall length (including cab) is 20 feet 9⅛ inches; the outside width, 8 feet; and the overall height, 7 feet. The body is unusually light in weight, the exterior being of sheet steel and the interior of laminated wood ⅜ inches thick which is glued to the metal and the two are reinforced with split rivets.

The body is reinforced with solid rivets. The walls inside are covered with heavy padding. The floor is of hard maple, tongue-and-groove, and is finished with a special varnish. It's a floor that does not splinter, and as is well known in the industry, this is a great advantage, for splinters can easily mar furniture when they work into the padding used to protect the furniture in transit. Underneath, the floor is treated with a waterproofing compound.

In developing this standard body, thought was especially devoted to protecting the interior from dust and moisture. Where metal pieces are joined, the edges are turned inward to exclude moisture more effectively. Paint for the exterior, mixed according to special formula, is called "Mayflower yellow" (a color that is especially visible both in night and day traveling) and is shipped as such to all Mayflower agents. Each body, when new, receives three coats of paint, a primer, a surfacing coat, and finally a coating of enamel.



DAILY REPORT

Van No. _____ Date _____

Driver _____ Types _____

Cont. No. _____ From _____ to _____ Cu. Ft.

Cont. No. _____ From _____ to _____ Cu. Ft.

Cont. No. _____ From _____ to _____ Cu. Ft.

TODAY'S TRIP

Speedometer Today _____ From _____

Speedometer Yesterday _____ to _____

Miles Driven Today _____ Loaded _____ Empty

MILES DRIVEN TODAY IN STATES OF

State | Miles | State | Miles | State | Miles

EXPENSES CHARGED

Gals. Gas @ _____ Slip No. _____

Gals. Gas @ _____ Slip No. _____

Qts. Oil @ _____ Slip No. _____

Qts. Oil @ _____ Slip No. _____

Lbs. Cup Grease @ _____ Slip No. _____

Lbs. Cup Grease @ _____ Slip No. _____

Shoe Dell or Trans. Grease @ _____ Slip No. _____

Pts. Polish @ _____ Slip No. _____

Qts. Alcohol @ _____ Slip No. _____

Truck Repairs—Labor _____ Material _____

Truck Tires _____

EXPENSES PAID IN CASH

Truck Repairs—Labor _____ Material _____

Tire Repairs _____

Helper Labor Cont. No. _____

Telephone or Telegraph _____

Parking _____ Nights @ _____ Per Night _____

Postage _____

Bridge Toll or Ferry Charges _____

Packing Material Cont. No. _____

TOTAL CASH EXPENSES TODAY _____

EXPENSE ACCOUNT

Amount Due Me As Shown By Last Report _____

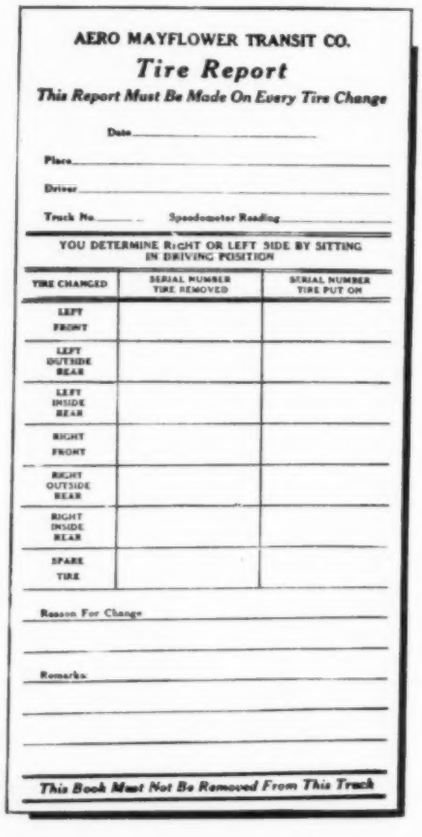
Total Cash Expense Today _____

Total Due Me For Expense _____

Less Amount Received Today in Payment of Expenses Previously Reported _____

Balance Now Due Me _____

Each driver must make a daily report on the above form. A breakdown of the driver's and helper's time is made on a special form which is printed on the back of this card. Thus a constant check is kept on both drivers and helpers.



AERO MAYFLOWER TRANSIT CO.

Tire Report

This Report Must Be Made On Every Tire Change

Date _____

Place _____

Driver _____

Truck No. _____ Speedometer Reading _____

YOU DETERMINE RIGHT OR LEFT SIDE BY SITTING IN DRIVING POSITION

TIRE CHANGED	SERIAL NUMBER TIRE REMOVED	SERIAL NUMBER TIRE PUT ON
LEFT FRONT		
LEFT OUTSIDE REAR		
LEFT INSIDE REAR		
RIGHT FRONT		
RIGHT OUTSIDE REAR		
RIGHT INSIDE REAR		
SPARE TIRE		

Reason For Change _____

Remarks _____

This Book Must Not Be Removed From This Truck

Every time a tire is changed, this report form is filled out. A corresponding tire-record card, for each tire, completes the tire record.

Of course, the Aero Mayflower Transit Company gets a lot of country-wide advertising as these vans travel here, there, and almost everywhere on the highways, and so a schedule of frequent repainting and relettering has been inaugurated so that all vans stay attractive looking and the signs always stand out and demand attention. Signs are also painted on the roofs. Drivers are instructed to wipe the vehicles frequently with cloths so that they always look spic and span.

The pads for protecting the furniture in the van are of jute, wool, and cotton, while the pads on the walls are of canvas. Each van is provided with 108 pads, 72 by 84 inches in size. If the thread used in these pads were hard, it would mark the furniture. A special thread accordingly is employed which is soft and at the same time unusually strong to withstand the hard usage it receives. Pads marked with the Mayflower name are also sold in sizable quantities to the company's agents.

One of the big reasons why motor vans are becoming increasingly popular in the transport of all kinds of goods is that the business is being controlled more and more by the larger, more responsible, well-organized concerns such as the Aero Mayflower Transit Company, which particularly concentrate their attention on training their drivers on safe operation, road courtesy, and giving the best possible service to their customers. In competition with such reliable concerns, the fly-by-night operator is fast becoming doomed.

The Aero Mayflower Transit Company must be particularly careful in selecting its men because they are "out on their own" on the highways and byways so long, away from headquarters, and are then in full charge of valuable equipment and valuable cargo. Each man, Mr. Smith declared, must be more than an ordinary truckman. He must be something of a diplomat and a business man. Like the company that hires him, he must be reliable and provide a superior service at all times. To guarantee his pledge to handle carefully the shipper's goods entrusted to his care, each driver is required to post a bond with the company.

Mention has already been made of the care with which Mayflower

(*Please turn to page* 44)

"You need never have a RING FAILURE

if you use PEDRICKS *and the* PEDRICK TECHNICAL SERVICE MANUAL!

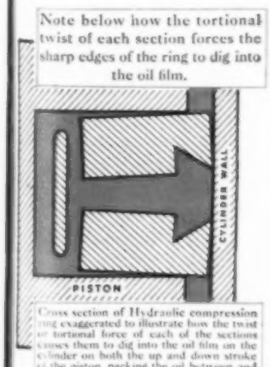
HYDRAULIC *Oil and Compression Rings*

U. S. Pat. 1,803,281—1,803,309—1,813,791—1,813,792.

85¢

THE FINEST PISTON RING INSTALLATION AT ANY PRICE

PEDRICK Hydraulic piston rings have two cast iron sections whose combined width is substantially less than the width of the piston groove. This *underwidth* feature is patented and is essential to obtain the sideways, check-valve effect which produces Hydraulic Action.


Note below how the tortional twist of each section forces the sharp edges of the ring to dig into the oil film.
CYLINDER WALL
PISTON
Cross section of Hydraulic compression ring exaggerated to illustrate how the twist or tortional force of each of the sections causes them to dig into the oil film on the cylinder on both the up and down stroke of the piston, packing the oil between and behind the sections.

Because they rely upon Hydraulic Action of the lubricating oil instead of high wall pressure, Hydraulic rings *never* make an engine sluggish. Hydraulic piston ring installation will give new car efficiency even in worn engines without renewing the pistons or refinishing the cylinders.

COMPRESSION *Rings*

25¢

The most important feature of any compression ring is its *roundness.* Due to the process of Heat-Shaping which sets all PEDRICKS to the exact, mathematical shape desired, the PEDRICK Compression ring is *round* and bears evenly against the cylinder wall to a degree impossible to obtain by any other process of manufacture.

DEEP CHANNEL *Oil Control Rings*

50¢

BETTER OIL CONTROL — LESS CARBON CLOGGING — VASTLY LONGER LIFE

It's the *shape* and the *depth* of the *continuous channel,* plus the use of round drilled holes instead of elongated slots, that give the Deep Channel Oil-Control ring these definite superiorities.

The sharp scraping edges cut into the oil film on both the up and down strokes of the piston.

Wear on the face of the ring reduces the face area due to the undercut feature of the channel, compensating for loss of tension — doubling the life of the ring.

THE COMPLETE *Pedrick Line* of HEAT-SHAPED PISTON RINGS

AUTO SERVICE PISTON RINGS

39¢

No Other Piston Rings Will Give Such High Performance at So Low a Cost

Auto Service Piston Rings meet the requirements for a low price expander type piston ring.

49¢

AUTO SERVICE Piston Rings Make it Unnecessary to Recondition the Cylinder Walls in Cases of Normal Wear

Each ring is supported by a cushion inner ring of finest Swedish steel to compensate for normal cylinder wear.

TECHNICAL SERVICE

The PEDRICK Technical Service—available free to every PEDRICK user—assures the selection and proper installation of the correct types of piston rings under all conditions. **Write today for complete information.**

Wilkening Manufacturing Co.

Philadelphia

Tire Cost Records *Prove* Economy *of* Retreading

•

An Interview With

Willard D. Bixby,

Manager of Motor Equipment, United Parcel Service, New York City

Definite Mileage and Cost Records Reveal That Tire Retreading IS an Economical Procedure in Parcel-Delivery Fleet

"FOR over two years we have been using retreads on many of our 1,500 delivery trucks and we have found that we get just about the same mileage from our rebuilt tires, as we do from our new ones."

The above statement comes from Willard D. Bixby, Manager of Motor Equipment for United Parcel Service—a firm which operates more than 800 trucks in the New York City area and over 600 other trucks on the West Coast; also in Cincinnati, Ohio. As most of our readers are now aware, the United Parcel Service handles the package delivery for a great many of the country's leading department and specialty stores. (And does an excellent job, too.—Ed.)

The United Parcel Service keeps what is perhaps one of the most complete sets of records on truck operation and maintenance and their increasing use of retreads has been based upon a careful study of tire mileage costs, and therefore constitutes one of the most valuable studies on the subject that has ever been made.

A glance at their tire records will show the *exact* mileage given by every tire purchased during the last ten years. Not only is the mileage shown, but also the cost-per-mile, which is even more important to the fleet operator.

A large group of their tires were picked at random by the writer, and the following is a summary of the comparative new tire and retreaded tire costs on this particular group:

Twenty retreads cost an average of $.095 per hundred miles.

Ninety-eight new tires cost an average of $.14 per hundred miles.

In other words, the cost of the retreads per mile run was considerably less than that of the new tires in the same sizes. These figures were for 7.00 x 20, 30 x 5 and 32 x 6 tire sizes. Other figures showed that retreads gave an average of 13,400 miles, with new tires in corresponding sizes giving only slightly more mileage at a *greater* cost-per-mile.

United Parcel Service uses only retreads which have been rebuilt from *their own* casings. They receive a mileage guarantee based upon 15,000 miles for tires over 6 inches, and 12,000 miles for tires under 6 inches in size.

While adjustments are made on all tires *not* running this mileage, the company has had many cases of retreaded tires giving *over* 20,000 miles and in a few cases, over 25,000 miles. Thus the paid-for mileage which is received, will average well over the 13,400 figure, previously given.

Some 300 retreaded tires are now mounted on the wheels of their New York City fleet alone, and probably a like number can be found on their trucks in other parts of the country. However, definite and complete records are only available on some 75 retreads which have *worn out* in service, and upon which these figures are based. The balance of their re-

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CAR NO. 307 — TIRE "ON" RECORD — 22279

STATION Queens

WHEEL R. F. rear — DATE ON 10-30-33 — DATE OFF 2-17-34

MAKE OF TIRE Safety Retread — SIZE 7.00-20 — NO. 205 C 385

METER READING 91048 MILES — OLD TUBE Used P.P. — NEW TUBE

		CHGE. TO CAR	REMARKS
MILEAGE OFF	114881		
MILEAGE ON	91048		
MILES SERVICE	23833	TIRE	
LIST PRICE		TUBE	for rebead
ADJ. ALLOWANCE		TOTAL	Guaranty
NET COST		ADJ.	
COST PER MILE		NET	2-17-34

If the proof of the pudding is in the eating, we'll just let this individual Tire Record Card speak for itself. It shows how a typical retreaded tire gave a mileage of 23,933, AFTER retreading.—H. C. F.

THE SILVER ANNIVERSARY 1½ TON •

TWENTY-FIVE YEARS OF PROGRESS
FWD TRUCKS
1910 · 1935

The H-S is designed from the ground up in the finest tradition of our twenty-five years experience in building four-wheel-drive trucks. It is intended for the operator who demands more in a truck than a converted passenger car and whose operations require quality equipment which can deliver the most in performance, dependability and economy.

Distinctive in appearance and in operation the H-S offers the same tried and proven features of the heavier models. It has the same set back front axle design, the center differential with its manually controlled lock, fully enclosed ball and sockets in the front axle, two-piece axle housings, and a host of other features including two independent sets of four-wheel brakes. Compare this new FWD with any truck on the market and you will find it conservatively rated, honestly built, and reasonably priced.

Four-Wheel traction carries the FWD over the hills at a good speed and cuts down trip time.

FIVE DEFINITE ADVANTAGES IN USING FWD TRUCKS

Greater Safety. Front axles are set back. Power as well as load on all four wheels gives the FWD sure footing on slippery pavements and when going around curves.

Wider Range of Operation. Four-Wheel traction enables the FWD to handle its regular hauling job easily and do the tough jobs as a matter of course.

10 to 20% Saving. FWDs in service prove that their all-around performance definitely makes them from 10 to 20% more economical. This is the result of savings effected in time, upkeep, operating cost or per unit delivered.

Faster—FWDs, with their powerful engines, wide range of gear ratios and four-wheel traction cut down trip time by being able to "make" the hills, curves, and poor going, faster than average trucks.

Dependable Service—Reserve power and rugged construction throughout, insure continuous operation under any condition. Backed by a nation-wide organization of parts depots and service men available at a moment's notice

FWD TRUCKS

THE FOUR WHEEL DRIVE AUTO COMPANY, Clintonville, Wisconsin
Canadian Factory: Kitchener, Ontario

☐ The Snow Removal Problem ☐ Use of Extreme Pressure Lubricants ☐ Truck and Trailer Size and Weight Restrictions ☐ Effects of Front Wheel Stability on Public Safety ☐ Purdue University Efficiency Test — Cutting Costs with the FWD Road Maintainer ☐ Making the most of Controlled Power

Mr. _____ Title _____

Address _____

City _____ State _____

BACKED BY NATION-WIDE SERVICE

treads are *still on the wheels* and therefore, complete and conclusive records are not yet available on them.

Careful studies of these records have convinced the management that there is a great economy to be enjoyed by rebuilding their tires. Now, every suitable carcass is rebuilt. Tires are pulled and sent to the retreader just as soon as the breaker strip begins to show, and in some cases even before that.

This company is now making an interesting experiment in having carcasses retreaded for the second time. Mr. M. J. Ryan, foreman of the tire department for United Parcel Service recently said:

"In the beginning, we were somewhat in doubt as to whether the retreaded carcass would stand up, even though the tread might not be worn through. However, we have had very few failures. Right now I have in the shop two tires which gave mileages of 13,400 and 14,200 respectively before retreading. After retreading we obtained 23,095 additional mileage on one of these tires and 23,933 on the other.

"When the tires were pulled, after the breaker strips began to show, the carcasses were still in such good condition that we are going to have them retreaded for the second time. Thus we expect these tires to give well over 50,000 miles before they are discarded."

Mr. Ryan has had many years of experience in maintaining large fleets of trucks. In this connection he stated, "There is no reason why any fleet operator should have the slightest hesitation about using retreads, if the work is done by an experienced retreader and a satisfactory carcass is used. We are cutting our own tire costs greatly by using retreads.

"Any operator having doubt as to whether retreads will stand up, can usually obtain a definite mileage guarantee. This guarantee will naturally vary on different size tires, and depends somewhat upon what service the trucks are used in. However, in our own case, we have proven conclusively that retreads will give about the same mileage at nearly 50% lower cost per mile than a new tire.

"While we have had a few cases of tires blowing out because of breaks at the bead and an occasional case of separation of the new tread material, these failures have been so few as to be a relatively unimportant factor."

The United Parcel Service has found that it pays to be careful in selecting tires for retreading. They usually discard all carcasses over three years old, regardless of the condition of the carcasses.

The above practical case of one of our largest fleet operators, should prove valuable to other fleet maintenance men. Here is a case where the economy of retreads can be backed up by definite records over a nearly three year period.

A rapidly increasing number of retreads have been used by this concern because their value has been proven on a scientific basis. No guess-work is involved in their buying of retreads. The mileage and cost records speak for themselves.

(EDITOR'S NOTE: The article which you have just read comes to us as a result of an interview made with Mr. Bixby by Douglas W. Clephane, Associate Editor of the *Rebuilt Tire Journal*. We acknowledge our thanks to Messrs. Bixby and Clephane for their courtesy in making possible the publication of these facts in FLEET OWNER. Readers are also urged to check back to page 36 of our November issue, wherein they will find an article outlining the results of *our* "survey" on tire retreading, which was made by means of the questionnaire appearing in our last August's issue. Several of the individual replies to this questionnaire appeared on page 34 of our October issue, and *all* of the replies have been tabulated in the form of a 3-page mimeographed summary. We still have a few copies of this summary on hand, and shall be glad indeed to send them to any interested *fleet operators*, on request.—H. C. F.)

It has recently been pointed out to us that some of the information gained from our survey on this subject is not entirely conclusive, because of the fact that most of the operators responding to the questionnaire have had their retreading done by a certain method. Local tire rebuilders claim that other methods (their own, of course) will produce far more satisfactory results and that retreaded tires, properly done, can be expected to stand up under any and all conditions that new tires will. These rebuilders seem to take particular exception to the statement that retreads are only good for slow-speed work, such as door-to-door delivery in the dairy, bakery, bottling and package-delivery fields. While it is not our desire to either support or discredit this claim, may we again point out that our recent article was based on the actual returns received from fleet operators. Our mind is not a closed book on the subject, however, and we shall be very glad indeed to hear from other fleet operators who have had experience with retreaded tires, particularly in heavy-duty work, on long runs and at high speeds. What do you think?

TIRE RECORD
7.00 x 20

Car Number	Date On	Date Off	No. Ply	Miles Run	Cost Per Mile	Reason Removed
769	2-1-33	7-18-33	8	11,408	$.0009	Worn out—junked
769	11-10-32	5-20-33	8	12,487	.0008	Worn out—junked
616	12-6-32		8			
616	12-7-32		8			
769	11-22-32	5-24-33	8	12,826	.0007	Worn out—junked
616	12-10-32		8			
781	2-18-32		8			
630	2-1-33	5-26-34	8	11,454	.0009	Cut—worn out—junked
630	2-1-33		8			
302	3-8-33	7-20-33	8	12,036	.0008	Worn out—junked
781	4-12-33		8			
769	5-20-33	8-31-33	8	7,548	.0012	For adjustment
775	7-28-33		8			
775	7-18-33		8			
769	5-25-33	12-5-33	8	10,711	.0008	For adjustment
302	10-28-33	7-6-34	8	23,095	.0004	For retread second time
302	10-30-33	7-17-34	8	23,933	.0003	For retread second time

And here is a typical Tire Record Card, which covers an assortment of 7.00 x 20 RETREADED tires. You will note that most of these gave good accounts of themselves and that the last two were put aside for a SECOND retread. Only one of them failed to deliver satisfactory mileage and was returned for an "adjustment".—H. C. F.

REASON ENOUGH

"EXTRA TON EACH TRIP .. FOUR GALLONS LESS GASOLINE PER DAY"

for ALUMINUM BODIES

OTTO PITSCHMAN
Hauling Contractor
129 Fancourt St.
PITTSBURGH, PENNA.

January 5th,

Mr. A. C. Runette,
The Aluminum Company of America,
Gulf Building,
Pittsburgh, Pa.

Dear Sir:

Recently you asked for our opinion of aluminum as compared with steel for use on our trucks as "Coal Bodies." Here it is; We haul approximately a ton of coal extra when we use an aluminum body and use four gallons of gasoline less per day.

Trusting that this information will be of value to you, I am,

Yours very truly,
Otto Pitschman
wfm

but we wanted more facts

So we phoned Mr. Pitschman. And here's what he told us: "We don't keep a record of the number of trips our trucks are making, but I do know this: At the end of each month when I figure up my bills for gasoline, each truck equipped with an Aluminum body has consumed four gallons less per day."

There's something even more important than the statement he made. His tone of voice spelled, SATISFACTION — 100%.

It is this enthusiasm of users that is building more and more Aluminum into truck bodies and tanks. Some of them think about the greater pay load and fewer trips. Others think about the lower operating costs, for gasoline, for tires, for upkeep. But they all reach the same conclusion—*Aluminum Bodies Save Money.*

May we help your builder figure on your next truck? Ask for book: "Alcoa Aluminum for Truck Bodies." Address, Aluminum Company of America, 1861 Gulf Bldg., Pittsburgh, Pa.

ALCOA

ALCOA · ALUMINUM

Want a Quick, Economical Finish?--The Answer is "Synthetic Enamels"

By Edward Chadwick,
General Supt. of Garage, Little Falls Laundry, Little Falls, N. J.

•

How We Developed a Refinishing Program That Does Not Interrupt Our Delivery Schedules

THE cost of refinishing automotive equipment is not alone the cost of the paint job. It includes the cost of tied-up overhead—vehicles representing a fixed investment that periodically goes "dead." Yet fleets that are not maintained in first-rate appearance are *costly*, in that their advertising value takes a slump. For this reason, initial painting, touching up and refinishing remains one of the most important problems of fleet operators.

A fleet of 120 motor trucks is employed in serving the customers of The Little Falls Laundry. They must keep going. The mileage covered by these trucks in one week's time exceeds the distance around the world—more than 25,000 miles. The result is that we have been forced to develop a paint practice that cuts the least into our delivery schedules. Once the technique of applying them is mastered, synthetic enamels constitute the simplest, quickest and most economical finish available. They give remarkable coverage and produce a durable, high-gloss finish that may be brushed or sprayed, and will dry hard overnight.

Our trucks are regularly run into a special room once each week, where they are completely washed, filled with gas and oil, and checked for condition of finish. If the truck has been scratched or damaged in any spot, it is "tagged" and run into the shop immediately. Loose parts or dents are repaired, whence the truck goes to the paint shop for a touch-up, if necessary. The touch-up may be a mere patch, or if considered advisable, the entire truck may be thoroughly cleansed, pumiced or sanded with water, and given a spray coat of clear.

If the condition of the paint demands, we may decide to either sand the old surface or entirely remove it for a complete refinishing. Whatever is applied, however, must not peel, flake or chalk regardless of weather conditions. Our experience is that if the surface is properly prepared and the truck has been allowed to stand long enough to take on the temperature of the room in which it is to be sprayed, and a good quality of paint is applied, according to directions, and allowed to dry, that finish will stand up.

For a touch-up job, the area to be painted is first cleaned thoroughly. All rust, grease, dirt, and water is completely removed. Ordinarily benzine on a cloth is the most satisfactory cleanser, though in some cases we use our own dry-cleaning fluid because it is a super-cleanser and evaporates clean in an instant. To obtain a smooth surface for the touch-up, it is sometimes necessary to do a bit of glazing and sanding. Feather-edging around a patch is accomplished by wet-sanding with naphtha, this being particularly suitable because it does not soften the surface, and serves as a lubricant. A finish put on after feather-edging in this way, produces a smooth-patched surface.

(*Please turn to next page*)

Applying clear synthetic over a touch-up job. This operator starts from the top down and does half of the back panel at one time. The left half is done and he is just beginning the right.

Decals are used in this fleet for all lettering and pictorial work. These two operators are engaged in applying the black border-stripe, after which the protective clear synthetic will be applied.

Out of the paint-shop, spic-and-span, and ready for the road. The use of synthetics permits quick refinishing that does not interfere with delivery.

LAUNDRY FLEET AIRS ITS REFINISHING DATA

"When the old finish is in good condition, the job simply gets a good sanding with Number 320 or 400 sandpaper. Then a coat of synthetic enamel is applied. The spray method is always used."

We have borrowed a bit from the refinishing art as it existed in the old carriage days by providing a clean, dust-free shop. Only one truck is allowed in the spray room at a time because unlike lacquer, synthetic enamel spray dust remains wet and will penetrate after it has been sprayed, and for this reason cannot be so readily removed from other trucks should the spray contact them.

Another precaution to prevent dust from raising havoc with the painter in the event it has failed to dislodge during the cleaning process, is to use a tack-rag, made by dipping a rag in slow-setting varnish, wringing, and exposing until it becomes tacky. This may be helpful in freeing the surface of dust and lint. This operation is ordinarily superfluous, however, when all other conditions are controlled.

If the job is to be a complete refinish job, an undercoat is used after all paint has been removed with a special paint remover. Several methods of removal are at the disposal of the painter. The alkali system usually used is a 5 to 10 per cent caustic solution.

And here is further evidence to bear out that the Little Falls Laundry fleet is well maintained from an appearance standpoint. When they can do it without interfering with delivery schedules, that's NEWS.

Sandblasting is as yet a troublesome procedure, and burning is not practical where composition or soldered panels are used. Unless done with some skill there is also the possibility of pitting a wood surface. For this reason we are partial to special removers prepared by paint manufacturers. Though slower in action, they are easier handling. One caution in their use, however, is to follow with a wash down with high-test gasoline, denatured alcohol or turpentine. This is done to remove wax and grease. Here again we often use our dry-cleaning fluid because it frees the surface of every trace of grease without leaving a residue.

The kind of undercoater to use depends upon the recommendations of the paint manufacturer whose synthetics are to be used. Special oil base undercoaters are advised by some. They may be applied over metal or wood, and their greater flexibility also makes them better able to withstand expansion and contraction resulting from temperature extremes. Some synthetics, however, set badly over oil-base primers and a special first coater or a light coat of synthetic enamel must be used.

If the old finish is in good condition, we apply a coat of synthetic enamel directly over the old finish after it has been well sanded with No. 320 or No. 400 sandpaper and water. If the entire truck or large portions are to be done, the spray method is always used. In some cases all that is necessary to renew the finish is to clean it down thoroughly with water and extra-fine pumice, or simply with a cloth dampened with benzine. After cleaning, a coat of clear, quick drying synthetic varnish is sprayed on. Actually, by this constant vigil and touching-up, we find that complete refinishing jobs are cut to a minimum.

Decals are used for all lettering on the Little Falls fleet, and the particular brand adopted permits the application of clear synthetic over them to preserve their life. Decals are particularly practical to the fleet operator not desirous of maintaining a professional letterer. Most painters can successfully line the beading and trim, which is all that is necessary.

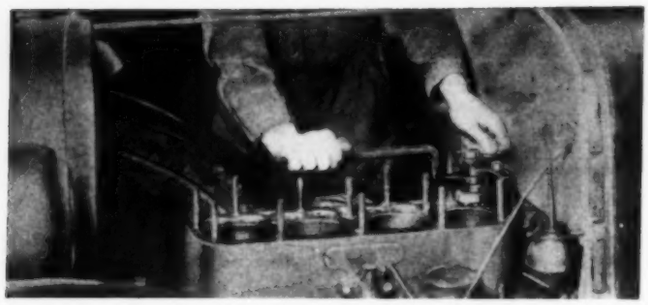
One other point with regard to the handling of synthetics is to use a special spray gun or nozzle as recommended by manufacturers, and to keep the air pressure behind the gun between 55 and 80 pounds—according to the synthetics used and the amount of reduction. Reduction may be made from 25% to 33-1/3% with synthetic or lacquer reducers. In hot weather it is sometimes necessary to use a "retarder" to prevent too rapid drying. By means of ventilating units in our paint room, we are able to control the speed of drying within reasonable limits.

First coats are sprayed light and are ready for a full, wet coat usually in from 10 minutes to an hour. To save unnecessary masking delays, mouldings, window sash and other trim parts are brush painted.

By giving intelligent consideration to these few finer points in the application of synthetics we manage to keep the Little Falls Laundry fleet "on the move" and our time and material cost for maintaining the fleet in handsome appearance is relatively very small—thanks to the new synthetics.

(EDITOR'S NOTE: The excellent pictures accompanying this article were secured through the cooperation of the Sherwin-Williams Company's photographic department, acknowledgment of which is gratefully made.)

Are Inserted Valve-Seats Here to Stay?



Early method of installing valve seat inserts on old engines. However, newer equipment makes this reconditioning operation possible in a mere matter of minutes. If you'd like literature covering such tools, just ask us.—H. C. F.

By H. Clay Fischer,
Editor, FLEET OWNER

A Good Question You'll Agree; Here Is What Our Recent Question-of-the-Month Survey Revealed on the Subject:

WHEN some of the truck and bus manufacturers announced hard-faced, inserted valve seats a few years ago and promised that this improvement would extend the periods between valve-grinds to as high as 100,000 miles, certain gentlemen of the fleet maintenance fraternity were overheard to say "Oh Yeah?"

Today, practically all new equipment comes through with inserted seats of some character. Some are made of high-tungsten steel alloys, others of special steels and still others of the bi-metallic type, in which a hard facing of Stellite metal is affixed to the wearing surface of the insert itself.

Likewise, various methods are employed for securing the inserted seats in the cylinder block. These include pressing, shrinking, dowelling, spinning and screwing in. However, it is not our purpose to expound the advantages of any particular type of valve seat insert. Rather, let us determine just whether or not these have lived up to the manufacturers' claims and as a source of information, we shall analyze the returns to our "Question No. 50—Valve and Seat Maintenance," from our Question-of-the Month Department of a recent issue of this publication.

"Do valve seat inserts actually cut maintenance costs?" That's a good question, all will agree. In the survey which we made on this subject, 52 fleet operators reported that *less* valve grinding is necessary with inserted seats; 2 firms replied that it made no difference and 31 firms replied that they had not as yet found it necessary to grind this type of valve seat, largely because the vehicles had not been in service long enough to warrant it. Guess that takes care of that question, doesn't it?

When asked *"What is the mileage interval between regrinds, with inserted valve seats?"* most of the operators reported mileages in excess of 25,000 miles; some reported as high as 100,000 miles and 10 operators stated "We haven't had to grind them yet." Not including the last-mentioned, the *average* figure is 35,000 miles between grinds, which seems to be a good one, in view of the fact that other average figures, with cast-iron seats, seem to run in the neighborhood of 15,000 miles. Another point worth mentioning is that the particularly high mileages were experienced with the bi-metallic type of seat which utilizes a hard-surfacing material. However, the advantages of the tungsten alloy steel, mono-metallic type of seat are not to be underestimated, either.

We have often heard it remarked that it was difficult to keep inserted seats in place and that they would not stay put. So we asked the question *"Have any of these seats come*

(*Please turn to page* 28)

Cut-away section of cylinder block of a popular truck engine showing the construction of the seat inserts. To those who can guess the make, we offer as first prize, a nice, new, shiny set of tappet wrenches for the Ford V-8.—Editor.

COMBINED WITH LOW CENTER OF GRAVITY...

Every Wheel Helps

DO THE JOB WITH GREATER SAFETY

...e is a Marmon-Herrington Model A50-4 (four-wheel-drive) just after ...as pulled a gross load of 103,050 pounds up a grade of 8.34 per ...t. Truck and body weighed 11,050 pounds; weights on the body ...ded 6,000 pounds; the trailer weighed 22,000 pounds, and the shovel ...the trailer, 64,000 pounds. The test was made in Honolulu by ...ce Brothers, Ltd., Marmon-Herrington distributors for Hawaiian Islands.

THAT'S WHY EVERY SINGLE MARMON-HERRINGTON CAN:

1 Carry More Tons of Payload with Far More Speed and Far More Efficiency.

2 Combine the Work of the Ordinary Truck with the Work of the Track-Laying Tractor.

3 Operate with Ease Under Conditions that Usually Would be Looked Upon as Impossible.

4 Get to the Job and Back Again Faster and with Less Trouble—More Trips, More Profit.

...O HALF-WAY PERFORMANCE...NO HALF-WAY TOUGHNESS

THE makers of Marmon-Herrington trucks are not selling unimportant details or center differentials—but the best and safest all-wheel-drive units ever developed.

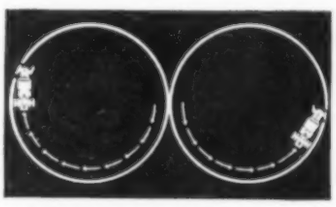
The makers of Marmon-Herrington trucks do not wish to confuse the minds of truck buyers with anything that will obscure the all-around ability of Marmon-Herrington vehicles.

It is a fact, for example, that far more all-wheel-drive trucks *without center differentials* have been sold and delivered in the past twelve months than four-wheel-drive trucks *with center differentials*. It is a fact, too, that Marmon-Herrington all-wheel-drive trucks do *not* have center differentials for the very good reason that center differentials are not, in the least, necessary.

But when it comes to the features that are really worthwhile, you are sure to get them *all* in a Marmon-Herrington. Take, for example, safety. No truck on the market is safer than a Marmon-Herrington. One reason is low center of gravity with resultant lateral stability which means that a Marmon-Herrington will slide down a side-hill grade before turning over. Another reason is power and braking ability—and still another, normal turning radius in either direction. Above everything else is the fact that *every wheel helps* do the job more efficiently.

There is a Marmon-Herrington for every need—28 models ranging in capacity from 1½ tons upward. Write today for complete specifications, engineering facts and details.

Excellent Territories for Capable Distributors



NORMAL TURNING RADIUS

Marmon-Herrington is the first all-wheel-drive truck with a normal turning radius in either direction—just as short as the turning radius of any rear-wheel-drive vehicle.

LATERAL STABILITY

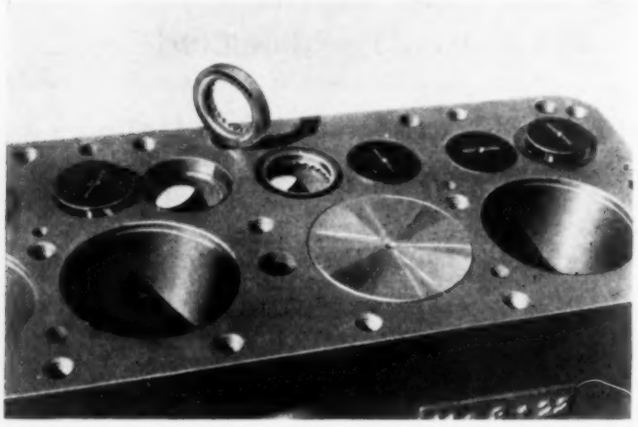
Low frame and wide tread give a low center of gravity and permit safe operation on or off the highway as well as travel on side-hill grades without danger of turning over.

MARMON-HERRINGTON CO., INC.

All-Wheel-Drive Motor Trucks...Indianapolis, Indiana

loose in service?" Fifty operators said "No." There were 14 operators who have had a few of them loosen up (on one make of engine in particular), and the balance did not have sufficient experience to qualify them to answer this question.

There was one operator who reported having difficulty with practically every type of valve seat insert; he simply could not make them stay put. However, as this experience is a rather singular one, and sticks out like the proverbial "sore thumb" in our survey, we can reasonably conclude that perhaps there's something wrong either in his method of installing them, or in his individual operating habits. We should not want to accuse him of being lax with his equipment, as he's a mighty fine fellow, personally, so we'll just wish him luck with future experience and conclude that the other 50 operators can't be wrong.



Besides being of the screwed-in type, these inserted valve-seats boast a hard-faced wearing surface of Stellite metal. A locking-dowel is employed to make sure that they do not turn.

An interesting, mimeographed summary has been prepared, which contains a complete analysis of the answers to our questionnaire, which appeared in the November issue of this publication. Under ordinary circumstances, we should not make it available to anyone excepting those operators who have participated in the survey. However, as this is a very timely subject, we will waive our rule, and hereby state that we will be glad to send a copy of this summary to any fleet operator who will write and ask for it. (We're not such bad skates, after all.) By making this offer, we hope that it will stimulate new interest in the Question-of-the-Month Department and that perhaps it will result in a wider participation on the part of fleet men. So let us hear from you, if you want a copy of the summary.

And now let us devote a few paragraphs to what the various car and truck manufacturers claim for their young child, the inserted valve seat. One of the "all three" manufacturers writes: "Valve grinding, one of the most expensive and inconvenient items involved in the maintenance of a motor vehicle, has been greatly reduced in many 1933 and 1934 cars and trucks by the use of exhaust valve inserts.

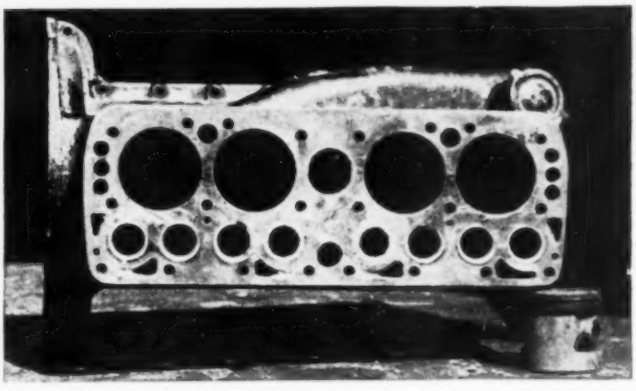
"These inserts are made of a high Tungsten steel alloy of such extraordinary heat-resisting quality that the vehicles will run upwards of 30,000 miles without valve grinding.

"In actual tests on heavy duty trucks, engines equipped with these valve inserts traveled 50,000 miles in service before it was necessary to grind the valves. Although one manufacturer fixes 30,000 miles as a conservative limit, it is believed that in actual experience it will rarely be necessary to grind the valves during this period.

"This means not only a saving in money involved in the actual grinding but also the saving in time and money that accrues through having the car constantly in service instead of in the repair shop."

Another manufacturer, who is an ardent enthusiast for the bi-metallic type of valve seat insert, writes as follows: "Many tests under actual operating conditions have proved that the combination of an abrasion-resistant, corrosion-resistant, non-ferrous alloy for the facing of inserted valve seats makes it well adapted for the most severe valve service. Exhaust valve seats of heavy-duty truck and bus motors must withstand the severe operating conditions of long, continuous runs and are subjected to erosion, corrosion and abrasion accelerated by the high temperatures of the gases in the exhaust ports. While ordinary cast iron seats must usually be ground every 10,000 miles, there are many cases on record of hard-faced valve seats with as many as 200,000 miles of service under conditions of full load and high temperatures without regrinding.

"One truck operator reports that no regrinding of the hard-faced valve seat inserts has been necessary after 350,000 miles of operation. Another large fleet owner tells an interesting story of a truck which, on a night run, continued for 100 miles with a stuck valve. On inspection, the steel valve was found to be almost entirely burned away but the hard-faced seat showed no signs of deterioration and was in perfect condition. In general, the adoption of hard-faced exhaust valve seats has resulted in lower gasoline consumption, lower compression losses, and increased power, mileage and all-around motor efficiency. The performance of these special hard-faced valve seats in heavy-duty truck and bus motors indicates that they will outlast the life of passenger-car motors. Considering the progressive attitude of automotive manufacturers toward parts or principles that improve motor performance, it is expected that sooner or later hardened valve seats will become universal. Then valve grinding will be a thing of the past."



A few operators report considerable success in rebuilding valve seats by filling them in with bronze welding-rod. One operator claims that they are lots easier to re-grind and that this latter operation does not have to be done more than twice yearly, as the bronze does not burn like cast-iron does.

Are inserted valve seats here to stay? We believe we've answered the question. What do YOU think?

"OUR TIRE COSTS DROPPED 35% WITH THE *NEW* SILVERTOWNS"

If your trucks are "tire eaters" listen to what Howard Haunsperger, Service Manager for George Thomas, Inc., has to say:

"I keep a very accurate service record on all our trucks. Since changing to Goodrich our tire cost per mile dropped 35%—due to longer life of the tires and to the great savings in repairs. We have not had a single sidewall failure with these tires. This not only reduces expenses but helps our drivers keep a clean no-accident record."

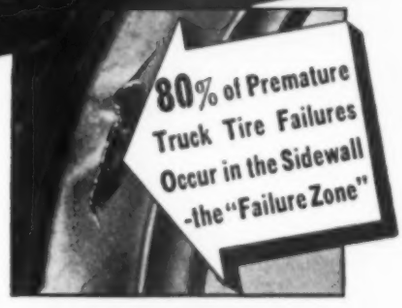
That's one man's experience. Multiply it by thousands and you have a picture of the tire that has amazed truckers.

There's a reason back of it all. Triple Protected Silvertowns offer positive protection against 80% of premature failures! That means you can now get tires that wear out—not blow out! No other tire has these three features:

1 **PLYFLEX**—a *new*, tough, sturdy rubber material with greater resistance to stretch. A layer of Plyflex in the sidewall prevents ply separation—distributes stresses—checks local weakness.

2 **PLY-LOCK**—the new Goodrich way of *locking* the plies about the bead. Anchoring them in place. Positive protection against the short plies tearing loose above the bead.

3 **100% FULL-FLOATING CORD**—Each cord is surrounded by rubber. With ordinary cross-woven fabric, when the cords touch each other, they rub—get hot—break. In Silvertowns, there are no cross cords. No friction.



FREE! TRUCKERS' HANDBOOK

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SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

By R. C. Haven,
Safety Engineer, Continental Baking Co., New York City

What Mechanical Devices for Safety?

Here Are the Results of a Safety Questionnaire Sent to Several of Our Country's Largest Bus and Truck Fleet Operators:

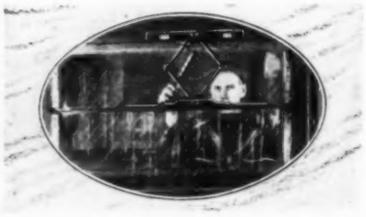
MUCH can be said in favor of and against the various types of mechanical devices for the safety of automotive commercial vehicles, and many devices of this nature are now on the market.

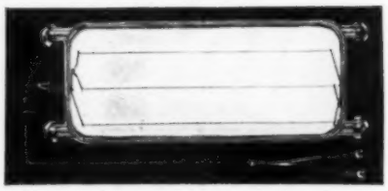
The following material was prepared as the result of a questionnaire sent to a number of the largest operators of truck and bus fleets in the country, as well as to several of the insurance companies who make a specialty of covering this type of risk. The answers received are both interesting and enlightening.

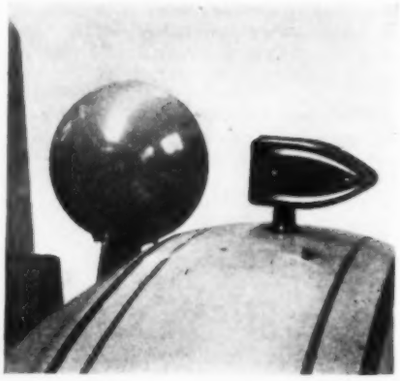
Here is an abstract of some of the most pertinent answers. This survey was originally presented before the recent National Safety Congress, at the Delivery, Taxicab and Bus Section Session:

Rear View Mirrors: An overwhelming opinion prevails that the non-glare type mirror has a distinct advantage, especially in night driving. All agree also that the flat mirror is best, since it presents a truer rear view. The majority opinion is that the round mirror is best, especially when mounted outside the cab. The best place to mount the mirror depends, of course, upon the construction of the vehicle; but the opinion prevails that the mirror should be mounted on the left corner post of the cab, as close to driver as possible. The ball and socket type with thumb screw adjustment and short bracket to reduce vibration is preferred. As to the advantage of two mirrors, instead of one, the opinions were about equally divided.

Windshield Wipers: The additional safety to be gained by using a double windshield wiper is impossible to measure. "However," said another questionnaire, "we specify two windshield wipers on all truck equipment." An electrically operated wiper is the only one that seems to successfully maintain a constant speed. The best method of keeping frost from forming on the windshield seems to be a grid type heater attached to inside of windshield. One suggestion was to use kerosene or alcohol, and glycerine is also effective for a short time. Of course, all agreed that all vehicles should be equipped with windshield wipers.







Horns: The use of horns, it seems, is being assailed in some of the foreign countries, but most everybody will agree that there is a right and wrong time to use the horn. The standard location for the horn button seems to be at the top of the steering-post. There seems to be no commonly used signal to indicate intention to back up, although one questionnaire suggested three blasts from the horn. The adoption of some such signal, however, might well provide just another alibi for the accident-prone driver.

Bumpers: Bumpers vary in height, depending on the size and the model of the truck. However, it is suggested that a standard height of bumper would help to reduce collision costs. Generally speaking, it was agreed that large trucks should be equipped with bumpers for the protection of passenger cars. It would of course, be very difficult to design a bumper for some of the large equipment.

Turn Indicators: As to the relative advantages and disadvantages of a wig-wag system and a lighted arrow, practically all expressed the opinion that the lighted arrow is the best. However, says one operator, "If the operator of a car fails to use hand signals, he will also fail to operate wig-wag system and lighted arrows." No successful way has ever been found to connect turn indicators to the steering gear of the car, so that they are entirely automatic.

Hand Grips: Hand grips in buses are usually best located immediately inside the front entrance door on the left-hand side. Fleet operators usually put hand grips on their trucks when the cab is high or design of the truck cab does not provide a good hand hold. Some kind

(*Please turn to page* 32)

Propeller Shafts With

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REFLECTORS—One bus company said: "It is our custom to place two reflectors, one each on the extreme sides of the rear of the coach, on a level with the eye."

of hand grip apparently is necessary from a safety standpoint.

Non-skid Steps: The type of non-skid treads used varies with the size and shape of the step surface to be covered and the amount of wear involved. There are a number of good abrasive metal plates on the market, as well as non-skid rubber and fabrics which seem to be used extensively.

Reflector for Limit Lights: One bus company said, "It is our custom to place two reflectors three inches in diameter, one each on the extreme sides of the rear coach on a level with the eye. We use lights instead of reflectors for the front limit lights."

Power Brakes: The question of brakes is, or should be, first and foremost in the minds of all operators, drivers, maintenance men, safety engineers and public officials. Apparently, the most efficient brakes for small capacity trucks are those of the vacuum type. As to desirability of delay in brake action to prevent too quick stopping, one operator says, "We adjust our brakes with as little lag as possible and train our drivers in the proper manipulation of them." There is considerable danger, all agreed, from power brakes on trailers not taking hold as quickly as those on the truck. Power brakes on trailers can be and should be arranged to come into operation before the brakes on the tractor or truck.

Flares and Fusees: Accidents are frequently reported where oncoming cars pile into other cars disabled or in collision along the highway. As a protection to both the parked and oncoming vehicle, many states are requiring flares or torches to be carried by trucks—especially those operating on rural routes elsewhere than in a city or incorporated village, and operating at night. As a matter of fact, many large fleet owners did not wait until compelled by law to protect themselves and others and make this a part of their regular equipment. Most of our replies indicate that flares are recommended and used except when state requirements specify fusees. Obviously, the oil companies object to using the open flame type due to the nature of their product. Regarding location of the flare on the vehicle, it should undoubtedly be located on the truck where the load cannot block access to it in case a flare is needed in a hurry.

HEATERS—All of the operators recommended the use of hot water or electric heaters only, the exhaust type of heater being regarded as a constant source of danger on account of monoxide, unless daily inspections are made for exhaust leaks, etc.

Carbon Monoxide Elimination: No answer to the questionnaires provide information about devices intended to eliminate carbon monoxide. The best preventive, said one operator, is careful maintenance of exhaust and muffler systems, tight floor boards and efficiency of engine combustion.

Heaters: The belief is general that safety cannot be increased by using a heater for cabs and trucks. Heat seems to increase drowsiness. As to danger from carbon monoxide coming from a heater, this is obvious from the fact that all questionnaries recommended the use only of hot water or electric heaters. The exhaust type of heater is a constant source of danger, unless daily inspection is made to see that manifold exhaust connection is tight and there are no leaks otherwise.

Chains: Our first answer said: "We find the use of chains in certain of our territories necessary with any type of tire, due to snow and mud conditions. We require all drivers to apply chains when driving conditions indicate the wisdom of their use." Another said, "Only in mud and heavy snow for traction. Chains are a very poor non-skid device. They are useless on icy pavements and, in fact, increase skidding." The third questionnaire added: "Chains should never be used for the sole purpose of preventing skidding. We try to get our drivers to consider them as aids only in getting under way on difficult roadways and not as a preventive of skidding."

Spot Lights: Everybody agreed that there is nothing to be gained from the standpoint of safety in equipping delivery trucks with spot lights.

Dash-Board Tell-Tales: The consensus of opinion as to their value for tail, limit and stop lights is that these are a safety feature worth providing. Attention was called to the many accidents being caused by the car in front being without these lights. The almost unanimous opinion is that tell-tale lights should operate separately from the dash lights.

Special Connectors: One answer said: "All trailers should be equipped with special connectors to avoid detaching due to vibration. Any locking device should certainly be positive and not a makeshift." One large oil company said: "We have designed special connections between trucks and trailers, so that they can be connected only in one way, thus avoiding any trouble with

(Please turn to page 65)

TIRE CHAINS—Declared to be ideal for snow or mud conditions. There seems to be some doubt as to their actual value on icy pavements, or to prevent skidding. Be sure to read the text.

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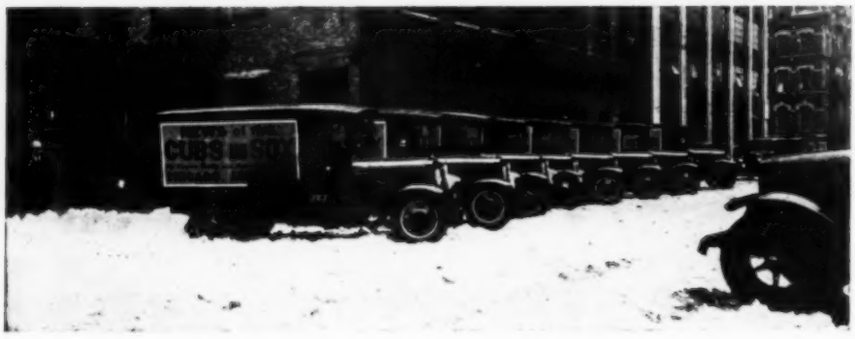
"Regarding *that* Newspaper Fleet Analysis--"



An Operator Comments on the Series of Articles Recently Presented, and Offers HIS Ideas on the Subject

By Clinton Brettell,

Supt. of Garages, R. H. Macy & Co., Inc., New York City, N. Y.

I HAVE read with a great deal of interest the very complete survey by E. J. Gribbons, of the fleet of newspaper delivery trucks owned by the "Combined Publishing Company" and it shows that the author has made a very careful study of the problem and has a thorough grasp of the situation in hand.

However, there are a few comments that might be made. These are of a constructive nature, of course, and are dictated by the writer's own actual experience in fleet operation and maintenance. Briefly, they are as follows:

(1) Owned vs. Hired Trucks: It is doubtful if the owning of a small fleet of trucks (25) could be justified from an economic standpoint. Economies in maintenance and operation can only be secured in *large* fleet operation, from the standpoint of ownership. However, there are many fleets in the country that operate well, under this plan.

In the first place, to administer such a system as has been proposed (see issues of FLEET OWNER for October, November and December, 1934 and January, 1935) this would require the services of a trained transportation executive. The writer believes that the salary of such a man could not be justified by a fleet of 25 trucks, and an untrained executive already in the organization (no matter how capable in other duties) would be useless in this direction.

Secondly, the very completely equipped shop which the author advises, would be an unjustifiable expense, by reason of its slight use for so small a fleet. Likewise, a tow-car, used possibly 3 or 4 times a year—and costing a minimum of $200 for standing charges (insurance, license, garage space, etc.) is certainly an unnecessary expense.

Then too, money is tied up in vehicles, buildings, etc., that might be utilized to better advantage in another branch of the business.

If, despite these several sound reasons for not owning equipment, it was still desired to do so, then a much simpler system of cost-accounting should be adopted, in keeping with the small size and centralization of the fleet in question.

Many details of statistical control, that are imperative in a large and scattered fleet, are entirely unnecessary in a small fleet, where close personal contact and "spot check" accomplishes even better results with a minimum of "red tape" and routine.

Fleet group costs for principal expense items, compared with mileage and days operated, and a total cost (including fixed costs) should show whether or not the total was rising or falling. If the former, then a more detailed check should be made, or a consulting transportation engineer should be called in.

Although accidents are not discussed in this article, good Safety information is always in order. Here's how chalk talks and blackboard work are used to advantage in the fleet of the best-known department store in the country.

The excellent system which the author has worked out is ideal for a large fleet, but it could not be "proven out" economically for a small fleet. In the following remarks, it will therefore be assumed that the system in question is being applied to a *larger* fleet.

(2) Depreciation: Preventive maintenance, no matter how thorough, would not, in the writer's opinion, materially change the trade-in value of the equipment, and hence the depreciation.

(*Please turn to page* 64)

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Gas-Welded Aluminum *in the* Transportation Field

Here is a typical example of the application of aluminum to the truck tank field for carrying gasoline or oil. Note that this unit uses a six-wheeler, with a full-trailer which also has six wheels. A total of 26 tires is used on this combination. The use of aluminum alloy helps to keep the vehicle weight down and permits greater payload.

By G. O. Hoglund,

Supervisor of Welding, Aluminum Company of America

(Just One of Our Methods of Keeping You Up-to-Date on Important Developments in Transportation Methods Automotive—Editor)

THE well-established position of aluminum alloys in the aircraft field and the more recent but widely discussed strides of these alloys in light-weight trains have somewhat overshadowed other fields that are equally important in utilizing these materials. In some of these fields the *weldability* of these alloys is of prime importance in determining the most economical means of making joints.

Up to the present time the acetylene-torch has been the most widely applied tool for welding aluminum and there is no indication that this will change radically in the immediate future. It is true that rapid strides have recently been made in the art of electric-resistance and arc-welding of the aluminum alloys but instead of displacing the torch welds, these methods will fill an independent field and provide additional tools for fabricating these alloys.

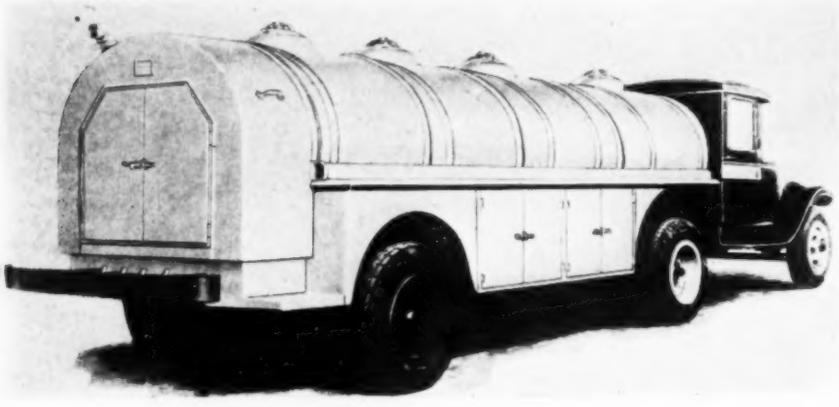

Figure 1—A gasoline truck tank of later design than the one shown above. Both of these units have been fabricated of aluminum alloys using a considerable amount of gas-welding.

In the following paragraphs an attempt will be made to discuss briefly the progress that has been made in using aluminum alloys where the service to be performed requires the use of torch-welded joints.

A typical example is the application of aluminum to the truck tank field for carrying gasoline, milk and other allied products. The advantages for aluminum in this case are light weight, low cost and excellent corrosion resistance. The light weight permits an increase in payload of about 20% over steel construction with consequent operating economies. Fig. 1 shows a gasoline truck tank and Fig. 2 shows a milk truck tank unit, both of which have been fabricated by welding.

An alloy of aluminum and 1.25%

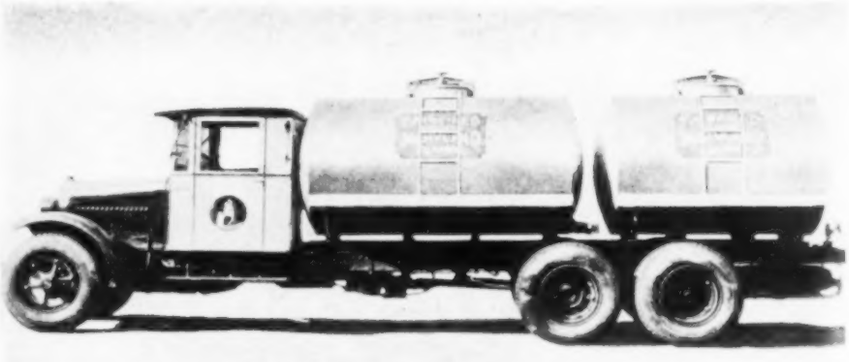

Figure 2—Here is another example of aluminum tank trucks. This one is used in the dairy industry, for the transportation of milk. The two tanks are made of welded aluminum alloys.

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GAS-WELDING *of* ALUMINUM TANK STRUCTURES *(Continued)*

manganese called "3S has been established as the best for use in truck tanks from the standpoint weldability, strength and corrosion resistance. Torch-welded construction for the longitudinal and girth seams is almost universally applied, and sound, leak-proof welds are easily made.

Tensile testing has shown the strength of the welds to equal the plate strength. The resistance of torch welds in "3S" to shock and distortion is strikingly shown in Fig. 3 showing a torch-welded truck tank after an accident. In spite of rather severe deformation, the welds did not break or leak. Salt spray corrosion tests in the laboratory, as well as considerable service, have shown that welds in "3S" are equal to the plate in corrosion-resistance.

A prominent and rapidly expanding field of welded aluminum construction is in the brewery and dairy industries. The sanitary requirements for equipment of this type are such that welded construction must be used to provide seamless joints that can easily be kept clean.

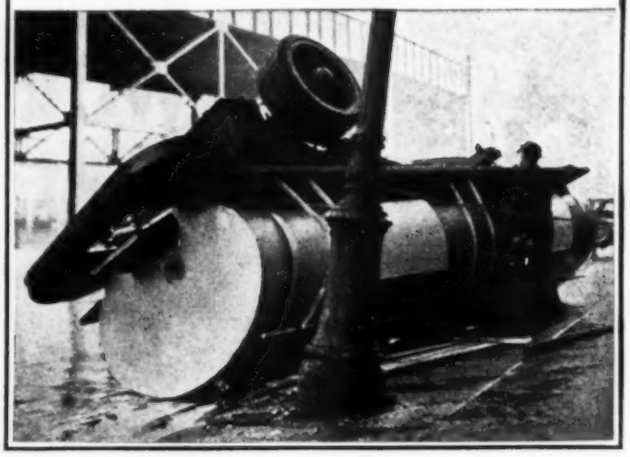
Aluminum is one of the few metals that can be used in direct contact with beer, without contaminating the beer. Two grades have been applied extensively for handling beer. For large stationary brew and aging tanks, a high-purity grade, 99.5% aluminum or higher, is used. All joints in these tanks that come in contact with the beer are torch-welded and a welding wire of the same composition as the parent metal is used.

These joints can be relied upon to have equal or better strength than the parent material and numerous tensile tests and pressure tests have been made that show breaks outside of the welded joints. In addition, the corrosion resistance of these joints is as high as that of the tank itself. Aluminum tanks for making beer have been used in Europe for some time and during the past two years this use has grown in the United States.

Another phase of the brewery industry is the packaging of beer for shipment by truck or rail. A solution of the problem of a light sanitary package for bulk shipments is the aluminum beer barrel, and about 30,000 barrels are now in service. In this case, while 99.5% aluminum has the required corrosion-resistance and welding properties, it does not have the mechanical strength to resist the rough usage to which a barrel is subjected. An alloy containing .7% Si., 1.25% Mg., .25% Cr. and balance aluminum, called "53S," is used. This alloy is heat-treated, to improve its mechanical strength.

The barrels are drawn in two halves and assembled by a torch-welded circumferential seam. No finishing or dressing is necessary on the weld bead and the barrels need not be coated on the inside with pitch. The standard 15.5 gallon barrel weighs 18.5 lbs.

Figure 3—No crying about spilled milk here. In spite of this rather severe accident, this aluminum milk tank, of all-welded construction, did not break or split open; and not a drop of milk was spilled.



For a long period the dairy industry has depended on tinned copper or steel for handling and pasteurizing milk. In recent years other metals that may be used in direct contact with milk without requiring periodic re-tinning have been introduced into this field. Aluminum is one of the most promising of these newer metals and there are 37 dairies in this country using aluminum equipment throughout. The alloys used most widely are "53S" and "3S." These were selected because of their good corrosion-resistance, and because they can be readily welded with a gas torch.

The resistance of aluminum to many chemicals has established its use in handling and processing of these materials. It is essential that such equipment have tight, easily cleaned joints and be economical in first cost. This has dictated the use of torch-welding in the majority of cases.

The shipping of nitric acid in aluminum drums is now permitted, after several years of investigation of the resistance of the metal and welded joints to the action of the acid. "2S" or commercially pure aluminum is used for such containers. Similar construction is used in making drums for hydrogen peroxide, except that a higher purity metal, 99.6% aluminum, is required. Welded joints are made with wire of the same composition as the parent metal.

Acetic acid is another material that is handled in aluminum. "3S" alloy is used for this chemical. This acid is handled in drums and tank cars, both which have been made from aluminum. Specifications and welders' qualification tests for the joints in such cars are based on the A. S. M. E. rules for Unfired Pressure Vessels.

Manufacturing processes involving the fatty acids are handled in welded aluminum vessels. Considerable aluminum equipment is also used in the rayon industry. This equipment is so varied in shape and design that a general description cannot be made other than to say that welded construction is used in the majority of the cases.

Aluminum has found extensive use in architecture because it combines the required structural and enduring qualities with what might be called "eye appeal", and some striking effects have been achieved. Welded construction is economical and is used extensively.

Aluminum window frames are now built up from extruded shapes and assembled by welding. The fact that the aluminum alloys can be extruded has permitted the designer to lay out complicated shapes that are required in windows, door frames, store fronts, etc. The assembly is simplified to a process of mitering or coping the corners to fit, and welding. Sheet, tubing and castings are also applied to obtain the varied effects required.

(*Please turn to page* 63)

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(157" Wheelbase)

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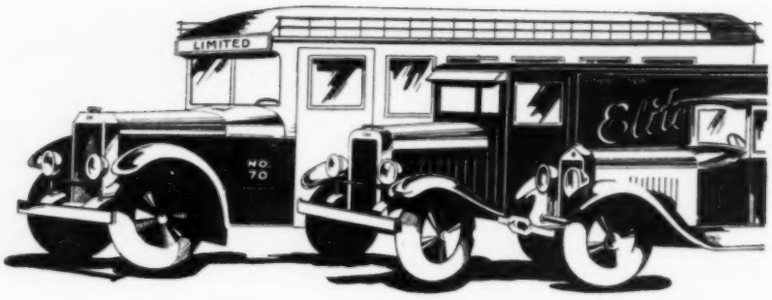
CHEVROLET TRUCKS

By A. J. Brosseau, V. P.
Automobile Manufacturers Association



The Industry's Accomplishments in 1934

A Resumè of Manufacturing, Selling and Operating Activities Which Shows That Trucks Were Important Factor in Transport Operations

AMERICAN motor truck manufacturers have closed the book on a year in which approximately 590,000 motor truck units were produced. This output exceeded the 1933 total of 358,614 by 65 per cent. The 1934 production of truck units was the third highest in the history of the industry and was surpassed only by the totals of 1929 and 1930. Trucks produced last year had a wholesale value of $305,000,000. The equivalent figure for 1933 was $192,131,509.

Increased activities in truck factories had a favorable affect on business conditions in general. Additional persons were employed in the production, operation and maintenance of the equipment as well as in related industries. Motor truck freight on railroads increased.

Exports of American made trucks last year were 115 per cent over 1933. This rise is due largely to removal of trade barriers and improvement of roads in foreign countries.

Increased use of motor bus and truck equipment by railroads abroad is reported in the Department of Commerce bulletins. Road construction and improvement in more remote lands has encouraged the use of motor transportation as the only modern means of communication.

In this country production has been generated by demands for replacements of wornout equipment and the appeal of vehicles designed to meet present day requirements. Engineering experience in factories has resulted in a product which assures the protection of the public and its highways, and at the same time provides a facility for economical and flexible transportation.

Gross weights have been decreased and payloads increased due to the use of lighter and more durable alloys. Engine and braking equipment has been improved. Solid tires are almost entirely obsolete and a commanding percentage of the vehicles are being equipped with low-pressure, pneumatic tires.

Public works projects stimulated activity in the heavier vehicle field. The output of trucks of 5-tons capacity and greater, during 1934, exceeded the 1933 total for that class by 111 per cent.

The year marked the beginning of an important era in truck operation. The Code of Fair Competition embracing all for-hire trucking was approved by the Federal Government and over 280,000 vehicles have been since registered with state code authorities. A program was instituted for basing rates on the cost of operation.

Computation of detailed data developed under registration provisions will provide information about the industry not heretofore known. This information along with the experience which can be obtained on rate filing,—if a reasonable amount of time is allowed the trucking association to gain this experience,—will identify the now unknown quantity and establish definitely what, if any, regulation of rates and services under the Interstate Commerce Commission is needed in the public interest.

Pending the development of this vital information, farm, shipping and truck operating groups have publicly requested that action on additional motor carrier regulation be deferred.

Government studies of taxation and the relationship of vehicles to highway construction have resulted in findings which have convinced the public of the need for newer and more uniform laws to meet current highway transportation requirements.

As a result of recent research, the U. S. Bureau of Public Roads reported in the October issue of "Public Roads":

"There is a noticeable tendency for the taxation imposed on motor vehicles to be relatively high in those States in which the intensity of motor-vehicle ownership is low, as indicated by a relatively large number of persons per vehicle. This condition was particularly noted in the Southern States, where the mileage of roads to be improved and maintained is very large in relation to

(*Please turn to page* 63)

1934 SEEN AT A GLANCE:

- Truck Industry's Output of Commercial Units Amounts to 590,000 in 1934.
- 1934's Production of Trucks Exceeds That of 1933 by 65 Per Cent.
- Over 280,000 Vehicles Registered Under Trucking Code.
- Gross Weights Decreased, but Light Alloys Permit Increased Payloads.
- Replacements and New Designs of Trucks Speed Up Purchases.
- Motor Trucks Still Among the Highest-Taxed Facilities in Operation.
- Safety Record of Trucks and Buses Continues to Improve.

They are tough Customers

● It takes extra tough, heat-resisting steel to make valves that will stand up and "take it" from high speed, high compression motors and slow-burning fuels. That's why so many fleet operators are installing Toledo Super-Forged "Guaranteed" Valves. For best results, equip *your* fleet with these superior valves. Near you is a Toledo jobber who has a complete stock, and who will give you prompt, efficient valve service.

GUARANTEE

Toledo "Type S" Super-Forged Valves are guaranteed. Your jobber will give you, without charge of any kind, a new valve in exchange for any Toledo "Type S" Super-Forged Valve which proves defective in service.

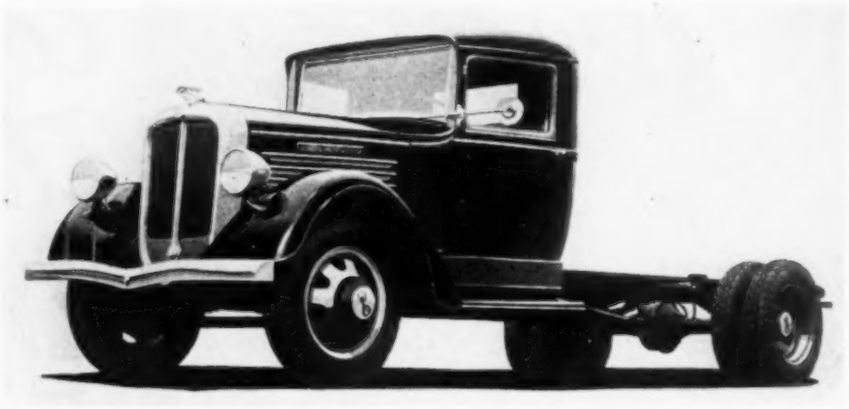
TOLEDO

THE TOLEDO STEEL PRODUCTS COMPANY, TOLEDO, OHIO, U. S. A.

New York, 17 W. 60th St. • Chicago, 1225 South Wabash Ave. • Detroit, 5857 Forsythe Ave. • Atlanta, 279 Ivy St., N. E. Dallas, 2805 Commerce Street • Kansas City, 14th and Oak Sts. • Los Angeles, 1341 South Hope Street • San Francisco, 528 Larkin St. • Portland, 408 N. W. 12th Ave. • In Canada: The Toledo Steel Products Company, Ltd., 14 Breadalbane St., Toronto

G. M. C. ANNOUNCES IMPROVED 1935 MODELS

MECHANICAL improvements which their engineers claim will provide greater economy and performance were announced recently by the General Motors Truck Company. Important changes are: Payload capacity of the 1½-2 ton T-16 has been increased 11 per cent, bringing the total to 5,630 pounds. Horsepower of the T-16 has been increased to 84 at an engine speed of 3,500 r.p.m., while torque has been increased to 152 foot pounds. This torque is maintained over a wide range of engine speeds from 1200 to 2500 r.p.m. Six per cent more m.p.g. is made possible, the engineers say, by improved combustion and other engine refinements. Hydraulic brakes are another important improvement in the T-16.



Other T-16 changes include heavier crankshaft, relocation of thrust bearing at front end of crankshaft, larger connecting-rod bearings, improved steering knuckle and spindle construction, new piston ring oil seal in rear axle, drop-forged rear axle spring seats, centrifuse brake drums on all four wheels, and 23 per cent increase in brake lining area.

The gross rating of model T-18 (illustrated) has been increased to 11,500 pounds, giving a 13 per cent greater payload capacity. The h.p. on the T-18 has been increased 12.3 per cent and torque 3.8 per cent. Fuel mileage has been increased almost 25 per cent. Improved performance and economy are also obtained by engine thermostats, increase in compression ratio and changes in carburetion.

The T-18 has been improved by clutch vibration dampener springs, heavier rear axle, hydraulic brakes and centrifuse brake drums with 367 square inches of lining area. Optional is the new dual-performance rear axle.

Model T-23 in the 3-ton range and T-33 in the 3½-ton range also have many improvements. Payload capacity and economy have been increased. Clutches are now of the single disc type and brakes are now hydraulic, with larger linings. A vacuum booster is standard on the T-33; air-operated brakes optional at extra cost.

In the 4-ton range model T-43 has an 11 per cent greater payload capacity. Performance and economy have also been improved as has the steering. There is a new single-plate clutch. Hydraulic brakes with a vacuum booster are standard.

The T-46 in the 5-ton range now has as optional equipment a 5-speed overdrive and underdrive transmission, wider wheel tread at the front, heavier rear springs, and hydraulic brakes with a vacuum booster.

The appearance of all light and medium-duty models has been improved by changes in radiator, hood and fenders. Cabs for models T-18 to T-46 are now skirted and have a more sloping windshield in addition to many interior refinements. A de luxe accessory package is available, including chrome spring bar bumper, chrome hub caps, and chrome radiator shells.

•

18-WHEELED TRAILER BEATS ALL KANSAS LAWS

THE Four Wheel Drive Auto Company of Clintonville, Wisconsin, is the maker of this eighteen-wheeled combined truck and semi-trailer. The outfit illustrated is owned and operated by the Sam Schneider Oil Company, Hutchinson, Kansas. Because of the well-balanced distribution of the load, the very maximum allowed by Kansas laws is represented by this trailer train in size, capacity, length, and weight.

The overall length is an even fifty feet, the limit of length allowed by Kansas laws. The breakdown of the length data gives 176 inches wheelbase for the truck, and 379½ inches for the tank, the remaining length being given over to hook-up and trims.

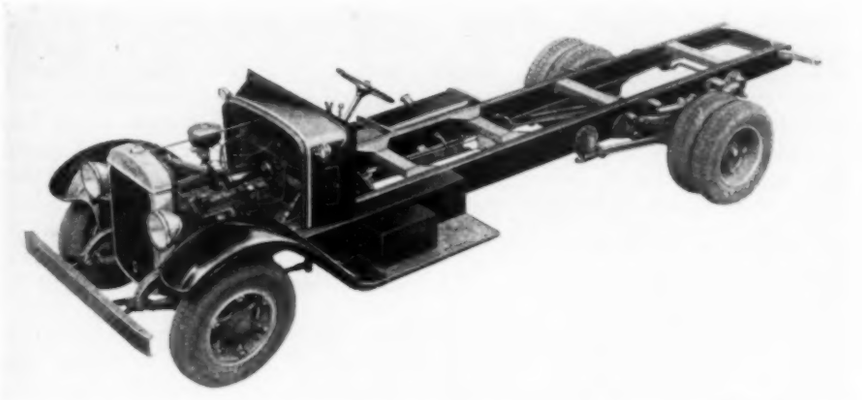
The total gross weight of truck, semi-trailer and load is 62,000 lbs., the highest weight allowed in Kansas. The weight of the gas load is 35,960, or 5,800 gallons. The total weight is divided as follows: Weight of truck, 12,950 lbs.; trailer axle assembly, 4,800 lbs.; fifth-wheel, 475 lbs.; weight of tank 7,815 lbs.; weight of payload, 35,960 lbs.

Incorporation of the maximums of length and weight allowed by the state, in this truck and trailer, is made possible by the balance of load, and weight distribution. The weight on the front axle of the truck is 7,830 pounds. Each rear truck axle carries 13,235 pounds, and the rear trailer bogie takes its share of the burden of 14,000 on each axle. Maximum weight on any axle allowed in Kansas is 16,000. All eighteen wheels are equipped with 9.75 x 20 tires, single in front and dual in rear of truck and dual both front and rear on the trailer.

The six large intake orifices are located atop the tank. Six outlet valves on the side-bottom permit rapid unloading. The tank illustrated is an all-steel Columbia. The motive power is a Waukesha 6-125 engine, the horsepower of 125 being reached at 2,500 r.p.m. The fuel tank of

(*Please turn to page* 43)

STEWART'S NEW 3½-TONNER IS READY



A NEW heavy-duty 3½-ton truck is announced by Stewart Motor Corporation, Buffalo, N. Y., known as Model 18XS, and available in wheelbases of 160, 176, 190, 220 and 235 inches, permitting the installation of bodies up to 18 feet in length. Chassis weight is 6,800 lbs.

The motor is of 6-cylinder, L-head type, having a bore and stroke of 4⅛ x 4¾ inches and features which include 7-bearing crankshaft, full-pressure oiling system, "Rajah" type cylinder head, drilled connecting rods, steel valve inserts, full length water jackets and down-draft carburetion. Electric starting and lighting equipment, of course, is standard.

Clutch is a 13-inch, single-plate type with vibration dampener. A five-speed transmission is utilized, having an over-drive. Gear ratios are 7 to 1 in first, direct in fourth, .78 to 1 in the over-drive and 7.18 to 1 in reverse.

A Timken full-floating rear axle is standard, and a double-reduction axle of the same make is optional at extra cost. Front axle is of the I-beam type and Timken roller bearings are used throughout both axles. Steering gear is of the Ross cam-and-lever type with a 20-inch wheel.

Service brakes are 4-wheel Bendix, equipped with booster. Parking brake is located aft of the transmission. A special additional parking brake, which locks all four wheels, is available also. Wheels are of the cast, hollow-spoke type, with duals at rear. Tires are of 7.50-inch size front and rear. Bodies of from 9 to 18 feet can be used on this chassis, depending on wheelbases, which are listed above.

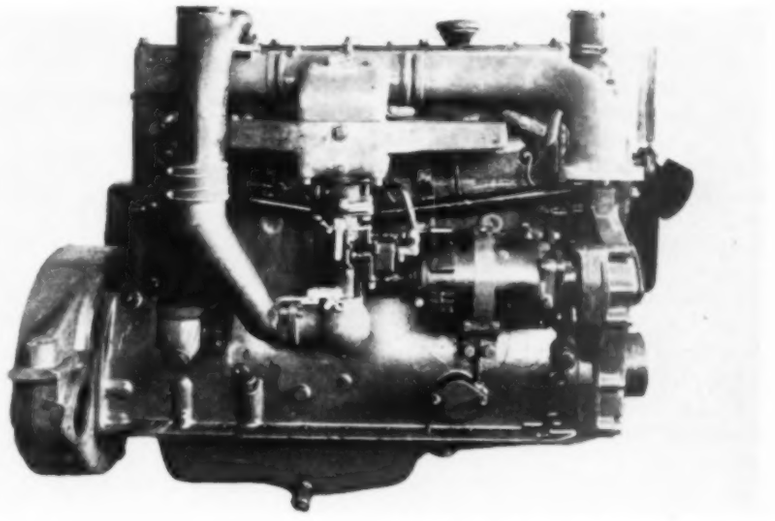
•

CONTINENTAL "R" SERIES NOW BURN OIL

A SPARK-IGNITION engine that will operate satisfactorily on ordinary furnace oil (Number 1 oil) is the latest announcement of Continental Motors Corp., Detroit, Mich. This engine is a further development of the Continental "R" series of overhead-valve motors, and is conventional in construction, with the exception of the manifolding and carburetion. However, in the oil-burning type, cylinder-heads, manifolds, water pumps, etc., were completely redesigned as well, the makers state.

As the accompanying illustration shows, exhaust heat is utilized to help vaporize the less-volatile fuel oil, through an ingenious system of manifolding. The engine must be started and warmed up on gasoline, however, and will then do its principal running on the fuel oil. It is necessary, therefore, when using this engine, to provide dual fuel-tank facilities; also a two-way changeover valve, so that the operator may change from one fuel to the other at will.

We understand that this engine can be used to replace the engine in any type of chassis that calls for an engine of this size. For this purpose, Continental has employed three basic engines, covering from 92 to 121 h.p. In cases where Continental "R" Series engines are already in use, a field changeover can be made, consisting only of those special parts associated with the fuel oil-burning set-up, viz: cylinder head assemblies, manifolds, push-rods, primer, carburetor, air cleaner, etc.



The manufacturers also recommend where the new oil-burning set-up is used, that the installation of some type of permanent provision be made, for blanking off a portion of the radiator core for cold weather operation, so that the minimum inlet water temperature be not lower than 160 degrees F. For further information, write directly to Continental Motors Corp., Detroit, Mich.

Trailer Stays Under Limit

(*Continued from page* 42)

fifty gallons capacity is mounted on the side. A large tool box is located on the left running board.

Brakes operate directly on all six wheels, by air booster. Total drum area is 1,303 sq. ins. Other equipment includes oil-type air cleaner, heat-indicator on dash, dual twelve-volt battery and bus type generator.

There are five speeds ahead, the sliding jaw type of transmission being operated by single hand-controlled lever from the driver's seat. The transmission gears are always in mesh.

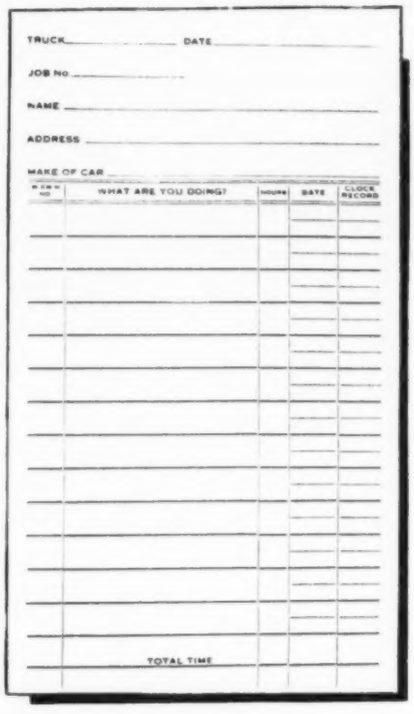
MAYFLOWER FLEET SOLD *on* STANDARDIZATION

(*Continued from page* 18)

men are trained in packing and loading and unloading furniture. Drivers are also expected to put time in the shop and especially to be trained in regard to oiling and greasing and truck cleanliness. Drivers are not permitted to do mechanical work. All trucks are governed for a maximum speed of 40 miles per hour. Any man found tampering with a governor is subject to dismissal. There is also a recording meter (Servis Recorder) on each truck which provides a daily record of the truck while on the road and of the stops, especially spotlighting those stops that may be too long or those that are unnecessary. Discipline must be enforced and for the purpose a number of strict rules have been formulated. Punishment for breaking these, of course, must be exacted: for a first violation it is a 30-day lay-off; a second, a 60-day lay-off; and a third, dismissal.

Close check on all Mayflower drivers is maintained by means of road supervisors, twelve of whom are employed. Four of these travel around in cars and the other eight are top truckmen. Irregular inspections are always in order, and since a driver never knows when or where such an inspection will take place, he doesn't dare to lapse in his duties as formulated in Mayflower rules and instructions. Education of drivers is a continual process and is conducted through these road supervisors, by frequent general letters and occasionally bringing them in to Indianapolis in groups for special training and "brushing up" courses. In the never-ending campaign on safe practices, wide use is made of insurance-company safety letters and bulletins.

A lot of thought has been devoted by Mr. Smith and his fellow executives to the comfort of drivers. Shrewd business men that they are, they of course realize that a comfortable driver is bound to be a better driver. Some time back Mr. Smith noted the popularity of one of the drivers, who played a guitar, among other drivers during an off period in Washington, D. C., when seven or eight men had gathered around his truck to hear him play. The thought immediately struck Mr. Smith that music should greatly add to the comfort of the men while driving and reduce the monotony of day-after-day long-distance travel. *And so he had a radio installed in each van!* The result has been extraordinarily beneficial. The radio, he finds, helps to keep drivers awake on long night runs. It keeps the men at their trucks while waiting at various places and reduces the temptation for a driver to slip away and take in a movie.


TRUCK _____ DATE _____

JOB NO _____

NAME _____

ADDRESS _____

MAKE OF CAR _____

WHAT ARE YOU DOING?	HOURS	DATE	CLOCK RECORD

Make FAFNIR STOCKS . . .

your bearing stock room

Fleet operators are profiting through the Fafnir plan of service. You, too, can reduce overhead in the same way. Have a nearby Fafnir distributor carry your ball bearing requirements.

This plan will enable you to reduce your inventory . . . cut out the waste of idle bearings on your shelves.

Maintenance problems occur less often when Fafnirs are used. The precision and accuracy of these bearings increase the miles between replacements.

Write to the Fafnir Automotive Service Department for complete details on this money-saving plan. THE FAFNIR BEARING COMPANY, *New Britain, Conn.* Atlanta . . Chicago . . Cincinnati . . Dallas . . Kansas City . . Minneapolis . . New York . . Pittsburgh . . Portland . . San Francisco.

Safeguarding Quality

FAFNIR BALL BEARINGS

QUESTION *of the* MONTH

"By far, one of the most valuable departments to be found in any automotive publication. Every fleet man should be delighted to cooperate."—A Reader

« Spring Lubrication *and* Maintenance »

(Some of the Interesting Replies to Questionnaire No. 51:)

By N. W. Glass, Supt.,

Indiana Service Corporation, Ft. Wayne, Ind.

"SOME of our spring work is done in our own shop; some is farmed out to a spring specialist, which is also our source of supply on replacements. Spare springs for various types of vehicles used are carried in stock by us.

"Every 1,000 miles we check for tightness and adjustment and at the same time lubricate our springs with light oil, thinned with gasoline. In some cases 'helper' springs are used.

"Sometimes we re-arch and reenforce springs with extra leaves. However when the repairs will amount to half the price of a new spring, we will not rebuild, but will install a new spring. Any good parts of the old spring are then salvaged for future repairs.

"Our spring practice is not the same for passenger cars, trucks and buses. We do not call for any spring steel specifications, but leave this up to the spring specialist. We do not use spring covers."

●

By A. A. Heinz,

General Cigar Company, Chicago, Ill.

"ALL of our spring maintenance work is farmed out to a spring manufacturer. We likewise purchase our supply of replacement springs from this source, and do not carry any stock of springs or leaves.

"We check the springs on our cars for tightness and proper adjustment approximately every 1,000 miles. We do *not* use any lubrication on the springs whatever; simply greasing the spring shackles. Practically all of our cars are either half-ton panel type or sedan-delivery type.

"Since there is no occasion to overload, we do not require 'helper' or overload springs. We find it to be better practice to purchase new springs rather than to repair the old ones, or to have them re-arched. No spring covers are used; we have had no experience with independent wheel suspension."

●

By R. W. Kelley, Supt. Trans.,

Iowa Southern Utilities Co., Ottumwa, Iowa

"OUR spring repairs are made in our own shop. We have found that by so doing, with the use of replacement springs and spring leaves furnished by our vehicle manufacturer, together with a few extra spring leaves purchased from spring specialists, (locally in an emergency) we are able to materially reduce our costs on spring maintenance. We do not carry a stock of replacement springs, but do carry spring leaves furnished by the manufacturer of our buses and trucks.

"We check our springs and grips for proper distance and tightness weekly, and lubricate them once a month with a mixture of penetrating oil and fine oil, used in a spray-gun, with the weight taken off the springs. When assembling a spring, we give it a coating of graphite, which we believe is of great value in lengthening the life of springs, as well as making them ride easier. Our buses are all equipped with helper or overload springs rather than added leaves in the main springs.

"Upon the installation of a new main or middle leaf, the other leaves of the spring are thoroughly checked and re-arched if necessary. If they have lost their arch to a great degree, and if there is too much loss of tension, they are replaced with new leaves. We check our springs carefully for wear and loss of arch, to determine the necessity of repairing or replacing with new.

"We do not insist on a particular spring steel specification, but use those as furnished by the manufacturer. We do not use spring covers. Our buses are all equipped with rubber spring shackles, in place of the old-time pin and bushing, and we have found this to be a great improvement."

●

By S. D. McMurray, Asst. Gen. Mgr.,

White Star Bus Line, Hato Rey, Puerto Rico

"WHEN considering whether to replace with a new one, or to rebuild an old spring, we investigate carefully the condition of the old spring, its age, tension and length of time in service. We do not re-arch springs; replacement is preferred.

"All of our spring repairs are done in our own shop. Replacements are secured from a spring manufacturer. We carry stocks of rebuilt springs, new springs and main leaves.

"We do *not* lubricate springs, but check them for tightness and adjustment every 2,000 to 3,000 miles—or every 10 to 15 days. We favor the use of graphite between leaves when they are assembled.

"For reenforcing springs we use 'helper' springs at the rear of our buses and sometimes an extra leaf on the front. We are at the present time experimenting

MORE REPLIES *to the* SPRING QUESTIONNAIRE

with one or two special alloys with a view to determining the best spring steel specification for our purpose. We do not use spring covers and prefer the rubber bushed type of shackle."

●

By Karl Stouffer, Mech. Supt.,

People's Freight Line, Inc., Tucson, Ariz.

"REMOVAL and replacement of truck springs is done in our own shop; the actual repair work is farmed out to a spring manufacturer. We do not carry any stock of springs, excepting a few extra leaves.

"Every 30 days we check springs for tightness and adjustment, at which time the springs on small cars are lubricated. We do *not* lubricate the springs on big trucks and trailers. The use of graphite between spring leaves is favored by us.

"We use helper springs on some equipment. When springs flatten out we have them re-arched or replace with new, depending upon the item of cost. The big ones are usually re-arched.

"Our spring practice is not the same on passenger cars and trucks, due to the item of cost. We do not insist on any special spring steel specification for replacement springs. No spring covers are used."

●

By Dwight H. Woods, Engr.,

Nashville Gas & Heating Co., Nashville, Tenn.

"EVERY 1,000 miles or 30 days (whichever occurs first) we check our springs for tightness and adjustment; we also lubricate them at this time, using a spray of light oil. We favor the use of graphite between spring leaves.

"Our spring work is farmed out to the vehicle manufacturer. We do not carry any spring stock, as we get our supply from the above source. We do not use extra leaves, but do use 'helper' springs.

"We do not re-arch springs; these are replaced. Repair or renewal is determined on the basis of cost —we replace if repair cost amounts to more than half of the cost of a new one.

"Our spring practice is the same for all vehicles. We do not ask for any particular spring steel specification. We do not use spring covers and are inclined to favor the Tryon type of shackle."

(Please tear out and mail to The Editor, The Fleet Owner, 90 West St., New York City)

Question No. 53 — Rear-End Maintenance

How often are your rear-ends checked for lubrication and adjustment? .....

What make or type of lubricant is used? ..... About how much do you use per month? .....

Do you use "extreme pressure" lubricant? ..... Or, ordinary gear lubricant? .....

Do you replace rear-ends on the "unit-replacement plan"? ..... Or, do you just replace when defective? .....

If the "unit replacement" plan is followed— { What is your mileage per set of gears? ..... / What is your mileage per set of axle shafts? .....

Is rear-end repair work done in your own shop? ..... Or, do you farm it out to other shops? .....

What is your source of supply on rear-end gears and axle-shafts? (Please check below)

☐ Vehicle Manufacturer; ☐ Vehicle Dealer; ☐ Jobber; Others? .....

If "replacement" gears and axles are used, do you specify the brand desired? .....

Please state which brands you prefer for replacement. (gears and axle-shafts) .....

Do you insist on "matched" sets of ring-and-pinion gears for replacement? .....

Do you consider it good practice to replace only ONE gear? ..... Or, do you always replace them in pairs? .....

What models (if any) of your vehicles are particularly hard on rear-axle gears? .....

What models (if any) of your vehicles are particularly hard on axle-shafts? .....

What are your most common rear-end troubles? (Please explain) .....

.....

Do you attribute any of these troubles to OVERLOADING, on your part? .....

Remarks .....

.....

How many vehicles in your fleet? (Please state below)

Trucks or Tractors ..... Trailers ..... Pass. Cars ..... Buses ..... Miscellaneous .....

Note: If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.

Swap your Maintenance experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm .....

Address .....

City and State .....

Your name ..... *Position* .....

• NEWS of the TRUCK INDUSTRY •

Don Furlong Joins Federal

THE appointment of Don G. Furlong as District Sales Manager for Federal Motor Truck Company is announced by J. F. Bowman, Vice-President. Mr. Furlong is well known in motor truck circles. For nine years he was associated with the Ford Motor Company. Since 1933 he has been general sales manager for The Thornton Tandem Company, Detroit. Mr. Furlong will cover the Ohio territory for Federal.

•

Reo Gets Large Export Order

AN order for fifty-two 1½-ton Reo chasses was recently phoned to the Reo factory by their Buenos Aires distributor, according to E. G. Poxson, export manager for Reo. "The speed required in filling this order, as evidenced by the fact that it was phoned to us, is just another illustration of the urgency of the demand for automotive equipment abroad," he said. "This demand has been noticeably increasing during the past few months."

•

Austin to Head Sales for Timken

THE Timken Roller Bearing Company announces the appointment of E. W. Austin to the position of General Sales Manager,, Automotive Division, with headquarters at Detroit, Mich. Mr. Austin has been connected with the Timken sales organization since 1919 and has been Eastern District Manager in New York; also Sales Manager for the Detroit area.

•

Latest Development in Trailers?

CHARACTERIZED as the latest development in trailers is this tandem-wheel, deluxe van recently announced by Fruehauf. The floor is only 18 inches from the ground, due to special drop-frame construction. Because it is nearly as wide as it is high and its center of gravity is low, safety is promised as well as a minimum of wind resistance due to the streamline design. Single tires in tandem require narrow wheel-housings and allow full loading space inside. The tandem axle arrangement provides interesting material for study. Fruehauf Trailers, Detroit, will send full details, if you want them.

•

The Utmost in Advertising Value

STREAMLINED design has a high advertising tie-in when applied to the vehicles of a delivery fleet; but safety and economy of operation were also considered by this oil company. This unit is one of a fleet that is now being acquired as a part of its program of vehicle expansion and replacement. The chassis is a standard, 130-inch wheelbase job.

Undoubtedly you can guess the make. Five and seven-ton loads are now carried, instead of two-and-a-half-ton loads, as was done formerly on longer wheelbases. There is an abundance of safety equipment on this unit, we are told. The job is an Autocar. (Did you guess right?)

•

Sedan and Panel Deliveries on V-8

ANNOUNCEMENT is made by the Ford Motor Company of new, 1935 sedan and panel delivery jobs. These have the same front-end design as the V-8 passenger cars. The load space in the sedan delivery is 65 x 44 x 46¾ inches; that of the panel delivery is 78 x 51 x 51½ inches. Rear doors are dust-proofed with sponge rubber strips. Interiors are insulated. The wire wheels are finished in baked enamel to harmonize with the body colors, several of which are available.

•

Late Reo Personnel Changes

THESE changes are announced by C. A. Triphagen, sales manager for Reo Motor Car Company: Ward W. Mohun, who recently joined the organization as special representative, has been advanced to assistant sales manager. E. W. Stephan, who has been manager of the Philadelphia factory branch, has been placed in charge of all Reo branches in the U. S. Both of these men have had wide experience in the automotive field. Reo also reports big business gains in recent months. Orders on hand are the highest of any corresponding period in the last five years.

•

FWD Increases Business 68.5%

THE year of 1934 has been closed by Four Wheel Drive Auto Company, Clintonville, Wis., with a record of an increase in total business of 68.5% over that for 1933, it was announced recently by R. H. Schmidt, general sales manager. Predicated upon the steady growth of business during 1934, the Company has made preparations for a like or better forward move during 1935, which will be their silver anniversary year. Their new, high-speed, 1½-tonner was illustrated and described in our last issue.

•

Data on Shaft Box Bearings

A NEW folder that contains data on SKF standard automotive propeller-shaft box applications has just been printed. This type of bearing box is especially designed to make use of the aligning feature of the SKF self-aligning ball bearing. Felt seals and flingers keep out dirt and retain the lubricant. This asembly is complete for quick application to propeller-shafts with S.A.E. standard stub ends, and includes housing, end covers, felt washers, flingers, clamps, sleeve and locknut. For a copy of the folder address SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

•

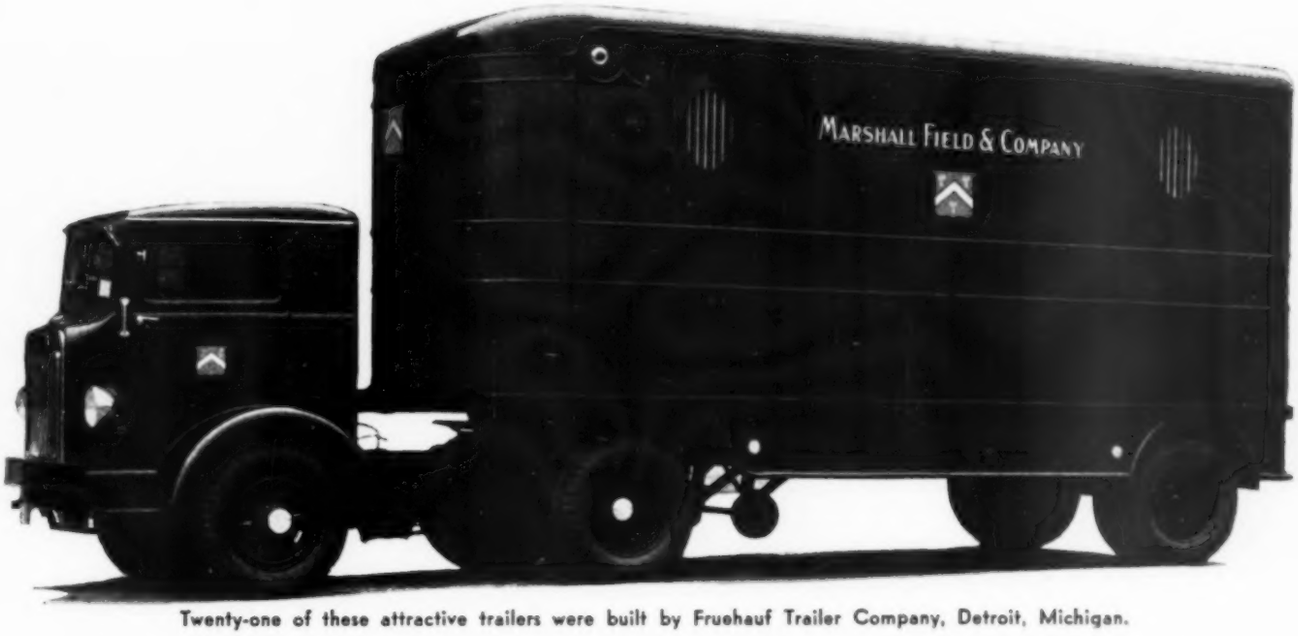
Radial-Diesel Offered by Continental

ENGINEERS, railroad men, transportation executives and users of stationary power were much interested in the radial-Diesel rail car engine exhibited by Continental at the New York Auto Show last month. It is a 2-cycle, single sleeve valve, supercharged 10-cylinder engine, delivering 635 h.p. at 1,400 r.p.m. The new unit is also said to be adaptable for powerhouse use. Carburetion is of the solid-injection type. Any Diesel oil can be used, but the makers recommend No. 4, because it is most available. A full line of this type of engine is promised, to fulfil the needs of all forms of transportation.

•

An Unusual Tank-Trailer

SOMETHING new in tank trailers is this streamlined job, fitted with glass-enclosed display compartments. And there's a streamlined tunnel on top of the tank, underslung cabinets with glass doors and five compartments for gasoline and oil in the 1,045-gallon tank body. The design of the Ford V-8 tractor and the tank trailer, as well as the color scheme, blend well in an unusual streamlined effect.



Twenty-one of these attractive trailers were built by Fruehauf Trailer Company, Detroit, Michigan.

PLYMETL

To Carry Out a Tradition

Marshall Field and Company is world-famous for the beauty and quality of its merchandise, consequently, when they recently placed an order for a fleet of large trailer vans, the specifications called for material which would be in keeping with traditional "Field Quality" . . . Significantly, Plymetl was selected for side paneling because its smooth surface takes the finest of finishes. There are no distorting high lights on Plymetl panels since we use a stretcher levelled steel face firmly cemented to a smooth plywood panel. Moreover, this steel is a superior grade of "galvanneal" highly rust resistant . . . The advertising value of an attractive truck cannot be controverted. The finest effects are secured by using quality paneling. In this respect, you will find that Plymetl meets your every requirement.

HASKELITE MANUFACTURING CORPORATION

208 WEST WASHINGTON STREET, CHICAGO ILLINOIS

PERSONALLY

ALL material listed on this page has been personally selected and is recommended by your Editor. Executives of automotive fleets may obtain any or all of them by marking the numbers on the coupon below. You have our assurance that this will not obligate you in any way. And, when we say that this material is hand-picked, we mean . . .

SELECTED!

« LITERATURE »

210. **It is the Law!** Legal advice is usually costly. This type is not, for when you wish to run your trucks into other states, you won't have to consult a lawyer or a transportation expert—not if you have a copy of the book entitled "Truck and Trailer Size and Weight Restrictions" . . . This is a *real* handbook that includes every state in the Union. To make it official, each set of state laws is printed right in the book, and is countersigned by a prominent authority of each state. There's not a line of advertising in the book, and it's offered *free* to you . . . If you'd like a copy, mark Number 210 on the coupon below and we'll do the rest.

•

211. **Piston Ring Directory.** We'd even call it a catalog, as we're not the type of individual who tries to disguise things by giving them glorified names. This new issue covers all models of passenger cars, trucks, buses, taxicabs, engines, motorcycles, tractors and airplanes. If you have a boat, you'll even find your favorite marine engine listed . . . In addition to all that, there is a section containing piston-ring installation instructions, recommended clearances, combinations, etc. . . . So you see, it's a worthwhile piece of literature, after all . . . Number 211 brings a free copy. Use the coupon, please.

•

212. **For a Cold Burn-off.** There are other ways of "burning-off" paint without the use of a torch, although many people still think that this expression only refers to the hot method. Any kind of paint-removing is called "burning off," if you didn't know it. . . . What we are driving at is this: Oakite has developed a new product called "Cold Strip," which is designed for speedy paint removal, since you only have to flow it on with a hose and flush it off with fresh *cold* water. They tell us that you don't have to push and scrape to get the old paint off, as the hose will do the trick quite nicely. . . . Literature is now ready, covering the complete application—how to do it—and they'll be glad to send you the dope. That is, if you mention Number 212.

•

213. **Something for the Tire Man!** The man who looks after your tires should not be without the latest catalog on tire valves and valve converting equipment, offered by Schrader. . . . Believe us when we say that this is not only a handsome catalog, but is as practical as it is good-looking. For one thing, the various valves and fittings have been so charted that the desired size can be readily ascertained. . . . All of the new Schrader "Airline" products are included and easy reference to the data is a feature. Number 213 brings one, free for the asking.

•

214. **Dope on Graphite Oils.** Whenever fleet men meet, the subject of graphited lubricants is always a live topic of conversation. There are many different opinions on the subject, some of which are not exactly based on facts. . . . In order to set you right, the "papa" of the colloidal graphite industry, who has spent mililons of dollars in research, feels that it is his duty to pass on the real "low-down" on the situation. He offers a set of what he calls "technical bulletins" which reveal the particular information that will interest any user of gasoline engines. . . . We've read the bulletins and they're not really technical in the strict sense of the word, as we had no trouble in understanding them . . . If you'd like to read them, a free set can be obtained by indicating your wish with Number 214.

•

215. **Trucker's Handbook.** And here is a new operator's handbook that is just chock full of valuable truck tire data that you can put to immediate use. . . . We'll just omit the flowery description and suggest that you include Number 215 on our coupon below, if you want a copy. Like all other stuff on this page, it comes without cost, obligation or salesmen.

•

« FREE SAMPLES »

216. **A New Radiator Cleaner.** But it's not an untried product. The makers of Sani-Flush, which all of us have used in our bathrooms at home, now enter the automotive field, with a product bearing the same name, that has been especially designed for cooling-system cleaning. . . . They offer you a fair trial sample, so that you may see for yourself the kind of a job it will do. Since Spring is right around the corner (where have we heard that before?), we feel it is proper to include it in this department. If you would like to get in on this free offer, just mention Number 216 on our coupon below. Then forget about it, until you get the sample.

•

217. **More About Painting.** We've probably published more than our share of articles on vehicle refinishing, within the past twelve months. But, it seems, we haven't said much about masking. . . . In order to do neat work, some kind of masking-tape must be used, and to make up for our not mentioning it sooner, we've arranged that a liberal sample of paper masking-tape may be sent to you in time for your next paint job. Johnson & Johnson makes it, so it ought to be good. It comes in standard sizes from ¼" to 36" wide. . . . A nice working sample will be sent free if you mention Number 217 on the coupon. Need we say more?

•

218. **Real Fibre Sheet Packing.** There are many types of sheet packing on the market today, says the Vellumoid Company. . . . Of course, they would like to see you insist on theirs, instead of others. So, as an incentive, they offer, through this department, a liberal sample of sheet packing, from which you can make up some hard-to-get gasket. There's no obligation, except that they'd like to see you order your next supply *by name*. . . . If you have not as yet had the opportunity of using it, here's your chance to get acquainted. No obligation will be incurred if you mention Number 218. And the sample will be a liberal one, we're assured.

The Editor, FLEET OWNER, ... 1935
90 West St., New York, N. Y.

Kindly send me without cost or obligation the following literature mentioned in the February issue. (Order by number)

....

....

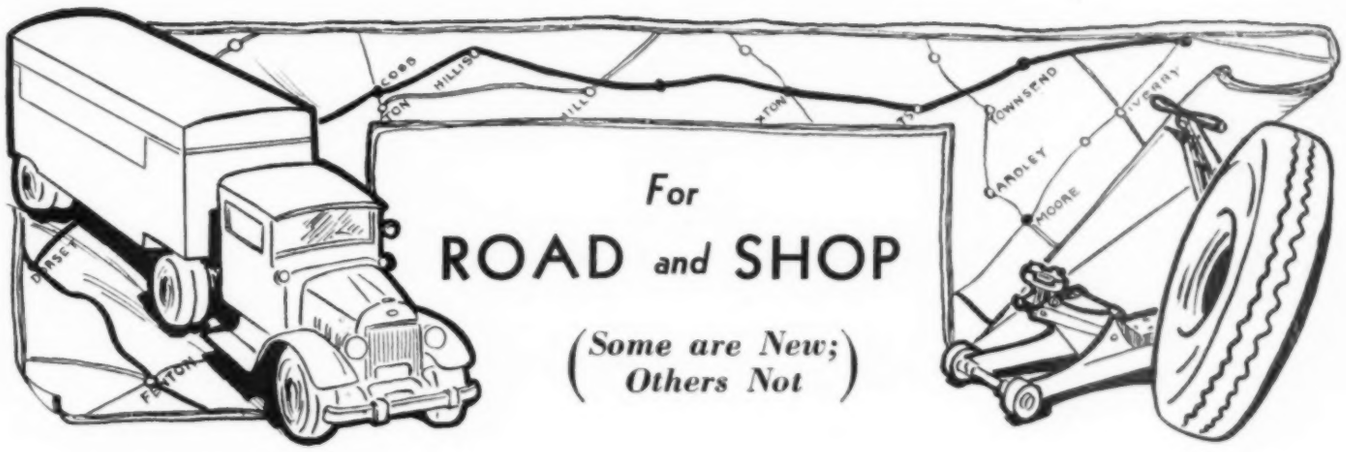
Name of Fleet .....

Address .....

City and State .....

Your Name ..... Position .....

Number of Vehicles Operated .....



For ROAD and SHOP

(Some are New; Others Not)

New Pedrick Piston Ring Directory

A COMPLETELY revised book of piston ring specifications has just been issued by the Wilkening Manufacturing Company, Philadelphia, makers of Pedrick and Auto-Service piston rings.

The new isue covers all models of passenger cars, motor trucks, buses, automotive vehicle engines, heavy-duty and marine engines, outboard engines, airplane engines, tractors and motorcycles. In addition, there is a section containing piston-ring installation instructions, recommended installations for various pistons, and other helpful data on servicing engines. A complete catalog also is included.

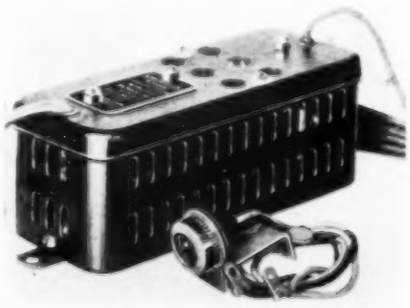
Copies of the Pedrick Size Directory are available through Pedrick distributors or direct from the factory, without obligation, of course. Mention of FLEET OWNER will insure prompt service.

●

Bosch "Dash-Socket" Charger

ANNOUNCEMENT is made by United American Bosch Corp., Springfield, Mass., of a new low-priced "Dashboard Socket Battery Charger", illustrated here.

This equipment was shown for the first time at the recent Automotive Service Industries Show in Cleveland. It is officially designated as Type BCA-2, has a tapering charging rate of 4 to 2 amperes, and lists at $8.00. We are not familiar with further details, but if you write as above, information will be sent without obligation.

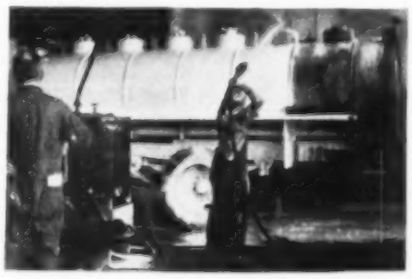


●

New Paint Stripping Process

RECENTLY developed is a process known as the Oakite "Cold-Strip" Method, designed for speedily removing paint from automotive equipment before repainting. Although only a few months old, it is already being used successfully by prominent bus and truck fleet operators.

The process consists of flowing on a COLD solution of Oakite "Cold-Strip" over the painted area. The solution adheres well, and it is allowed to remain on the surface to soak for thirty minutes. Then the



truck is hosed down with plain COLD water which caries away the stripping solution, together with three to six coats of old paint.

The material used is non-inflammable, it is easy to apply, and it is said stripping costs are far less than when paint removers are used. The new process has been perfected by Oakite Products, Inc., 22 Thames Street, New York, N. Y. They'll be glad to send you an interesting bulletin on this product, and if you'd mention FLEET OWNER when writing, we'd be very much pleased.

●

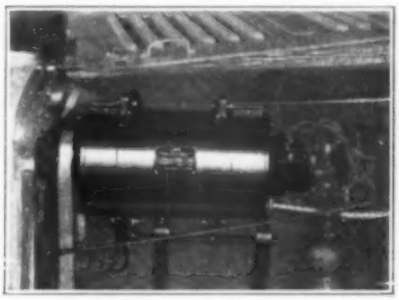
New Pneumatic Impact Wrench

IMAGINE a small machine weighing about 20 lbs. that will spin down a one-inch or larger nut at 700 r. p. m. and then give it a series of torsional blows at the rate of 1,400 per minute to tighten it securely. That is just what a new pneumatic tool will do, recently announced. It is called the Ingersoll-Rand Pott Impact Wrench. Details will be furnished by The Ingersoll-Rand Company, 11 Broadway, New York City, if you are sufficiently interested to write them.

●

Century Refrigeration Power System

THE Century Electric Company, St. Louis, Mo., manufacturers of electric motors and generators, has



recently acquired the entire sales rights to the Whitaker-Upp "Electric Power System" for truck-refrigeration, bus air-conditioning, and similar mobile refrigerated applications.

This system is made up of a constant voltage (115-volt) direct-current generator driven through a "V" belt by the engine crankshaft. This generated current passes through relays and protective devices to the DC end of a Century dual motor for the propulsion of a refrigeration compressor —also, the evaporator fan motor, if any.

While the truck is in dock with the stopped engine, the AC end of the dual motor (operated by 110 or 220-volts house current) is plugged into a receptacle and the refrigeration process is continued, as well as converting the DC end of the dual motor into a DC generator to operate one or more evaporator fan motors.

This power system is applicable to trucks, trailers or semi-trailers operating on high or low temperatures, for long or short hauls, as only an electrical connection between tractor and trailer is necessary for compact, dependable and economical electrical truck refrigeration.

A typical operation utilizing this system was described on page 19 of our October issue. An interesting folder has since been prepared. This may be obtained from Century Electric Co., 1806 Pine St., St. Louis, Mo. Please mention FLEET OWNER when writing for it.

New G-E Charger Cabinet

THIS rubber-protected Tungar battery-charging cabinet has been recently introduced. It combines charger, tester and cabinet facilities in one compact unit.

The new cabinet is designed for use with Tungar battery service units of the one-panel type, which combine a charger and a four-meter tester, and which mount neatly on top of the cabinet.

The cabinet stands about 64 inches high, is of 6-battery capacity; yet it requires but two square feet of floor space. A rubber drawer provides space for tools and when open also may be used as a platform for testing batteries, as shown.

For illustrated literature, prices, etc., address Merchandise Department, General Electric Co., Bridgeport, Conn. Mention of FLEET OWNER will be appreciated.

•

Tri-Clene, a New Cleaning Fluid

A NEW cleaning fluid, entirely different in its composition and effect ,has been placed on the market by the du Pont Company, Wilmington, Del. This new solvent is a pure chemical compound and quite different from the average cleaner which is frequently a mixture of carbon tetrachloride and naphtha, benzine or other petroleum distillates. Here is the maker's description:

"Tri-Clene, which is the name adopted for this product, is a heavy colorless non-inflammable liquid. Although highly volatile, it's vapor does not form a combustible mixture when combined with air, so presents no fire hazard. It is an excellent solvent for oils, fats, greases, waxes, tars, gums, rubber, chewing gum and many resins, making it an ideal spot remover. It will not only take out grease and oil, but will remove fresh paint, chewing gum, adhesive tape and road tar.

"One of its chief advantages is its perfect evaporation. Although it has a pleasant pungent odor when used, the odor disappears completely during evaporation. Not even the faintest scent is left when the job is done. It should prove popular in garages, for it not only cleans spots from the car upholstery, but may be used for removing wax and road tar from the car finish.

"Tri-Clene was introduced recently to the dry cleaning trade and is now sold in bulk to many establishments throughout the country. It is also being packed in small cans for retail sale and will soon be available to auto accessory shops and garages."

•

"Master" Spray Guns

AUTOMATIC synchronization of materials and air, controlled by a single adjustment, is the feature claimed by the maker of the "Master" paint-spray guns, illustrated here.

Two models are offered, one with an aluminum container and another which can be attached to the original quart size container in which the paint is purchased.

It is claimed that these guns will spray even the heaviest of lacquers or enamels without clogging, and that the automatic adjustment of materials and air will provide savings in

time and materials, greater production efficiency and speed.

Full details will be furnished on request without obligation. Address Burning Brand Company, 1400 W. Fulton St., Chicago, Ill. Eastern operators can get quicker service by addressing the firm at Room 704, 401 Broadway, New York City.

•

Free Book on "Pin Fitting"

A NEW free booklet entitled "Piston Pin Fitting," just published, provides interesting information of real value to every operator.

In this book is explained the importance of proper pin fitting in relation to motor performance. It tells how inaccurate fitting is chiefly responsible for a great many of the rebuild failures of today; how it causes a large part of the high initial wear on pistons, and much of the drag or binding of motors during the break-in period.

It also tells how to produce pin jobs that wear better and run longer, and which enable cars to travel at full speed as soon as they leave the shop. One interesting example reveals how a large car manufacturer effected an improvement in oil economy of from 600 miles to the quart to 2200 miles, simply by proper *pin fitting* alone.

The booklet will be sent postpaid by writing Sunnen Products Company, 7911 Manchester Ave., St. Louis, Mo. Mention of FLEET OWNER will insure speedy and efficient service. There's no charge, of course.

•

Casco "Cataphote" Reflectors

APPROVED to meet all reflector laws in all states, this new type of reflector is the latest product of Casco Products Corporation, Bridgeport, Conn. It is equipped with genuine Libbey one-piece Cataphote.

The lens is moulded in one unit and is set in a strong, all-metal housing to withstand hard usage. It can be applied direct on flat surfaces or attached by means of a bracket furnished with each unit. Reflection range is up to 800 feet, visible at any angle up to 63 degrees.

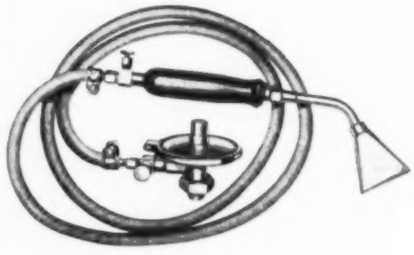
Made in red, amber, green and white, to comply with various state laws. Frame is furnished in either black enamel or chromium plate. Complete details may be obtained from Casco Products Corp., Bridgeport, Conn. Mention of FLEET OWNER will be appreciated.

•

Acetylene Paint-Burning Torch

ILLUSTRATED here is the Prest-O-Lite paint burner outfit, especially suitable for removing paint from commercial vehicle bodies.

It enables fleet operators to remove old paint thoroughly and economically. It operates on a tank of acetylene



gas, without air pressure or any outside connections. For complete details, address Linde Air Products, 205 E. 42nd St., New York City. You'll mention FLEET OWNER, won't you?

New Hi-Rate "Homcharger"

A NEW model of the well-known "Homcharger" is announced. We understand that this device was originally introduced in 1920 and nearly a million were sold.

The new model is illustrated here. It plugs into any lamp socket and will charge any auto-type battery overnight, it is claimed, starting the charge at about 10 amps. and automatically tapering off as the battery becomes charged. The total cost of the charge will be about 5c, they tell us.

A simple receptacle is provided for clamping to the dash. One wire goes to the ammeter, and that's all there is to it. For further details, write to Automatic Electrical Devices Co., Dept. 10, 324 E. 3rd St., Cincinnati, Ohio.

•

Delta Flashing Powerflare

HERE is a new electric flare that is offered as the successor to the conventional type of oil-burning torch and other types of highway flares.

It acts as a safety beacon for parked trucks, buses, street repair crews, highway work, emergency jobs, etc. The unit is small (7" high and 4½" in diameter) and is portable. It operates on a standard 6-volt lantern battery, good for 40 hours or more, giving a *flashing* brilliance of light.

Not only is it cleaner, but it is also safer. Bus operators will undoubtedly be interested. Oil companies will find no fire hazards with it. And there is no chance of damaging valuable cargoes of perishable products, such as meat and packaged eatables. For details, address Delta Electric Company, Marion, Indiana. They'll want to know where you saw it, so you'll mention FLEET OWNER, won't you?

•

New "Molium" Ring by Simplex

A NEW type of piston ring is announced by Simplex Piston Ring Sales Company, 1936 E. 66th St., Cleveland, Ohio.

The new ring is made of "Molium" a metal possessing many of the properties of the highest type of bronze bearing metals and claimed to be a low-friction, unbreakable material.

Three departures from conventional ring design are observed. These consist of the full-width inner-ring principle: laminated construction of flat, spiral-shaped sections for the ring

itself; and the use of the metal "Molium."

Manufacturers claims are: Will hold oil; will reduce cylinder-wall wear; will reduce friction losses; longer ring life because of the self-lubricating qualities of the metal and design of ring. Prices are said to be within the range of conventional type rings. For all details, address the firm as mentioned in the first paragraph of this news item. You'll mention FLEET OWNER when writing, won't you?

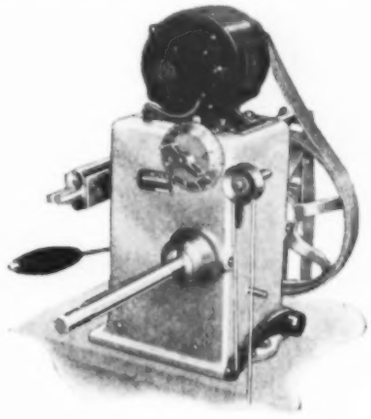
•

Two New Equipment Folders

TWO interesting folders illustrating and describing the latest in valve-seating and cylinder-reboring equipment have just been issued by The Hall Manufacturing Company, 1620 Woodland Ave., Toledo, Ohio. Many requests for these have been received, through our Question-of-the-Month Club and the folders have been found quite descriptive of the products which they cover. Copies are available to fleet operators, who may address the firm mentioned above.

New Sunnen Pin Hole Grinder

AT the recent Automotive Service Industries Show in Cleveland, the Sunnen Products Company, of St. Louis, announced and demonstrated the newest addition to their line of



shop equipment and service tools—the new Model "L" Pin Hole Grinder, shown here.

The outstanding feature of the new grinder is the foot feed-up and micrometer stop which not only makes for greater speed but prevents going oversize.

The range of the pin hole grinder has been increased to .480" to 2.400" making it possible to handle anything from water pump bushings to large tractor pins with this one piece of equipment.

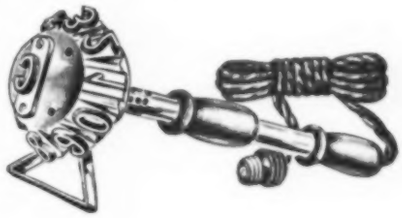
The Sunnen Products Company, 7911 Manchester Ave., St. Louis, Mo., will send a free folder describing this new model upon request. For further details—use the mails.

•

Inexpensive Branding Outfit

HERE is an interesting electric branding iron that may be effectively used for branding tires, as well as other items of equipment used in the average fleet service station.

This equipment is made in ½", 1" and 1¼" numerals, with room on the face for two interchangeable letters, or a small die-plate.



The iron is heated from any 110-volt lamp socket and the heating unit is easily removable. Operation is quite simple; the tool is just turned around to the numbers desired, one being imprinted at a time.

An interesting circular and price list covering this and other branding equipment may be secured from Burning Brand Company, Chicago, Ill. The eastern representative is Louis Wechsler, 401 Broadway, New York City.

SCANDINAVIA

DIE PRESSED and MOLDED BRAKE LININGS and BRAKE BLOCKS

Your fleet must have the best in brake linings to operate efficiently, safely and economically. "Scandinavia" Brake Linings are made to take care of gruelling conditions and overloads. They have stood the test of real heavy duty braking all over the country. Once adopted — always demanded.

SCANDINAVIA BELTING COMPANY

248-250 Central Avenue, Newark, N. J.

Boston, Pittsburgh, Cleveland, Charlotte, N. C., Los Angeles, San Francisco

MAYFLOWER FLEET SOLD *on* STANDARDIZATION

(*Continued from page* 44)

damage by fire, collision, overturning of truck, windstorm, or flood. Insurance is with one of the largest companies in the country. The company carries liability insurance of $100,000 on one person and $200,000 on two or more persons. Insurance against property damage of $100,000 is also carried for each van and cargo insurance of $50,000 for each unit.

When a Mayflower representative makes an estimate on a load before booking an order, he goes about the work in a very businesslike manner. He makes a complete list of the goods to be moved and notes cubical size thereof on a special form provided for the purpose. Although the sheet does not show every little package and parcel, it does show all the principal items and their cubical size. Four copies of the estimate sheet are made. One of these stays with the agent, one goes to the driver, and two go to Indianapolis. The representative is also provided with a tariff book in which numerous rates are indicated according to cubic feet of load and miles to carry the load. In figuring mileages between various places, good use is made of the recently published Rand-McNally "Standard Highway Mileage Guide." Following are some pertinent instructions contained in the tariff book:

"The exact mileage and the exact cubical content of each load must be accurately figured and the tariff applied accordingly. Mileage is to be figured on the most direct improved route. Routings and mileage must accompany each contract to the General Office. Estimates must be made on forms furnished by our company at all times and copy of estimate sheet must accompany contract to General Office.

"In estimating offices or libraries, the tonnage of the contents must be taken into consideration and the charge must be made accordingly. When goods are to be placed in storage at destination, collection or billing for our service must be made at time of delivery to warehouse. 600 cubic foot contracts, and up, will be handled any time shipper specifies; 400 cubic foot contracts must be sold on ten-day option; Less than 400 cubic foot contracts must be sold at company's option.

"Pianos and electric refrigerators are handled without extra charge to and from the first floor. Extra prevailing charge must be paid by shipper when either pianos or electric refrigerators are handled to or from the second floor, or above. This will not apply when adequate elevator service is available."

A form entitled "Moving Contract" is also used. Four copies of this are made, one going to the shipper, one to the agent and attached to the estimate sheet, and two to Indianapolis with copies of the estimate sheet.

Close check of all operating costs is a procedure that always stamps progressive present-day automotive fleet operators as carefully conducted business concerns. By means of specially devised forms on which necessary figures and data are recorded, Mayflower executives definitely know how each unit is working and how much it is costing and why. These records enable them to correct driver malpractices and to make various decisions that are entirely based on real operating facts.

This continual check on operation of Mayflower vans starts with the driver who must daily send in two reports. One is called the Driver's Daily Labor Report and the other is a Daily Report on which is recorded miles traveled, purchases, expenses, etc. (The latter is illustrated.) Drivers are not expected to spend money for oil, gasoline, and tires, because the company has a national credit ar-

rangement for these. Debits and credits of money to drivers are recorded in Indianapolis on a special ledger sheet. The two daily reports are made in duplicate, one of each being retained by the driver.

A copy of the tire report form shown is filled in whenever a tire is changed. A copy of the other card on tires which is reproduced is made out for each truck and provides a complete tire history for that truck. Four copies of a form entitled "Instructions to Driver" are filled out by the warehouseman, one of which he keeps, one goes to the driver and is returned to Indianapolis when the load is delivered together with his report on contract made out on another form (2 copies, one for driver) and contains the customer's signature, and two go to Indianapolis.

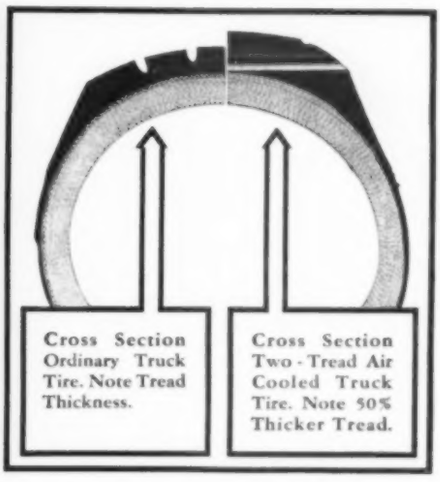
Of course, there is a set of forms for recording shop data, some of which are shown. One of these is a time card for each man working in the shop; another, a job time card; another is a material requisition blank; and the fourth, which goes in a loose-leaf book, is for recording information on stock parts.

Finally, we have the big ledger sheet, 16 by 12 inches in size. One of these is made out for each truck and various data are recorded on the other forms named above is transferred to these sheets, where in one book the Mayflower officials have a complete statistical set-up on every one of their motor trucks. On another ledger recapitulation sheet, figures on mileages traveled in various states are transferred. This is used to show mileage taxes paid in some of the states.

During the last five years, the Mayflower Company's rapid growth has materially increased the amount of traveling necessary. In its effort to keep pace with the changes in regulations of the various states, the company has purchased a four passenger Waco cabin plane, for the convenience of its president, Burnside Smith. He tries to call on the agency force throughout the United States at least once a year, and also makes it a point to keep in touch with the officials of all states which have regulatory bodies of truck operations. Mayflower is probably the only transportation company operating its own plane in connection with its regular business. Of course, the plane also provides the company much worthwhile advertising.

Well-tried business principles, close check of all costs and operations, careful driver education, standardization, close control of body design and manufacture, and a well-planned, country-wide organization, then, stand out as Mayflower success factors. The Aero Mayflower Transit Company has proved that the modern flexible motor truck is a very efficient low-cost vehicle for the speedy, long-distance transport of used household goods and office equipment.

NEW INVENTION
LOWERS TRUCK TIRE COSTS 21%
Saves Money Three Ways


Cross Section Ordinary Truck Tire. Note Tread Thickness.
Cross Section Two-Tread Air Cooled Truck Tire. Note 50% Thicker Tread.

***Saving No. 1*—50% Thicker Tread Means 50% Longer Wear**

These big, two-tread, air cooled truck tires give 50% longer wear. This is because they have two treads. When the first tread wears off, the second tread wears on with deep cross cleats ready to give thousands of additional, safe, skid-proof miles.

***Saving No. 2*—Air Cooled—No Road Delays**

The Seiberling patented* air cooled principle overcomes destructive internal heat that destroys ordinary truck tires and heretofore has made tires with thicker treads impractical.

Cool air is forced in and out of the holes that go right through the tread. This keeps Seiberling truck tires cooler —cuts down wear—minimizes road delays—gives extra dividends of service that Seiberling users alone can have.

***Saving No. 3*—Lower Maintenance—Easier Riding—Less Breakage**

The air channels inside the tread act as resilient air cushions. Seiberling-equipped trucks ride easier. Breakage and maintenance costs go down.

Amazing Record of Success

Seiberling two-tread, air cooled truck tires have been tested with remarkable success on over 5,000 trucks in the past two years. Actual cost records show that under the most trying conditions they operate at a saving of over 21%.

To reduce truck tire costs quickly, get in touch with your Seiberling dealer or write us for information at once.

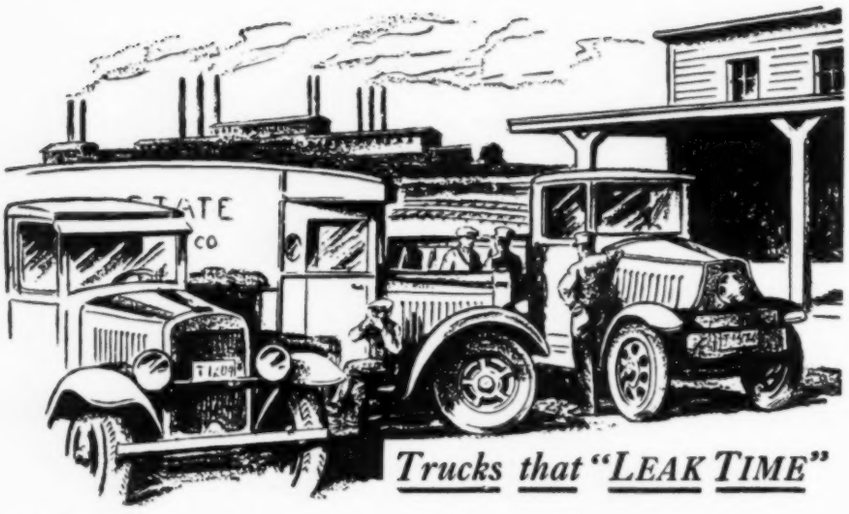
TWO TREADS— NEVER WEAR SMOOTH

When the tire is worn to the second tread, the air channels form cross cleats. A new sharp tread design makes the tire safe to the last mile.

* The Air Cooled Tire is covered by 8 U. S. Patents

THE SEIBERLING RUBBER COMPANY, AKRON, OHIO, U. S. A.
Seiberling Rubber Company of Canada, Ltd., Toronto, Canada

SEIBERLING TWO-TREAD AIR COOLED TIRES



Those New Taxes and License Fees Mean
EVERY TRUCK MUST COUNT!

Motor trucks always were expensive to operate. But *now* these trucks have an added expense: new and heavier taxes, and license fees that run up as high as $400.00 per truck! Where will it end?

Well, there is one thing you can do for yourself—and get quick results. You can make every truck count! How?

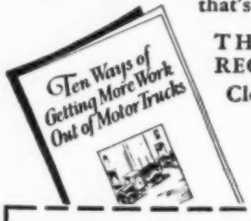
Put on *Servis Recorders* and get a complete record, in fact, a picture of just what each truck did—busy time and idle time—for the past 24 hours.

Delays, *avoidable* delays, are costly—from $3 to $5 an hour. When you can actually *see* these delays, you can stop them—easily. How? The coupon brings you the full story. Act today; that's none too soon.

These delays STARE out at you

Here's a *two-hour "leak"!*

This chart shows up all the "leaks" (wasted time)



THE SERVICE RECORDER CO.
Cleveland, Ohio

Write for it TODAY!

THE SERVICE RECORDER CO.
Hanna Building, Cleveland, Ohio

Please send us, without obligation "10 Ways of Getting More Work out of Motor Trucks."

Company _____

Attention of _____

Street _____

City & State _____

Mock Heads Bendix Carburetors

APPOINTMENT of Frank C. Mock as vice-president in charge of carburetor engineering was announced recently by Vincent Bendix, Bendix Products Corporation, South Bend, Ind. Mr. Mock is widely recognized as one of the country's foremost authorities upon the basic laws of fuel and air flow in automobile and aviation carburetors. He will have headquarters at the Bendix laboratories in East Orange, N. J., and South Bend, Ind.

•

"Kleenseal" Fittings Announced

A NEW type of lubrication fitting is offered by The Lincoln Engineering Co., St. Louis, Mo., known as "Kleenseal." It is claimed that they are fast, clean and efficient, insofar as lubrication service is concerned; also that they are now standard equipment on several new lines of motor cars. A new nozzle is also presented, along with the fittings. They'll be glad to send details, if you want them.

•

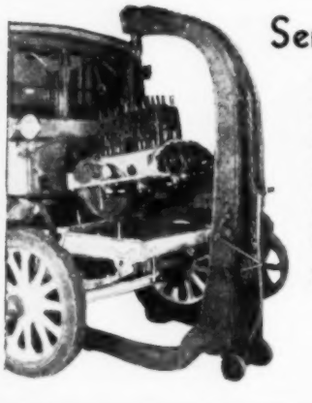
R. R.'s Save Money Using Trucks

SOUTH AFRICAN railroads are coordinating motor and rail service as a measure of economy. They are building no more branch lines and are using large six-wheeled, pneumatic-tired trucks as feeders, instead. Already, there are 200 of these feeder vehicles carrying goods and passengers to and from the main rail terminals. Monthly returns show increase in mileage over the corresponding period of the year before; also reduced operating costs and increased net revenue.

•

"How to Ship By Truck"

THAT'S the title of an interesting folder issued by Official Motor Freight Guide, 732 W. Van Buren St., Chicago. Besides giving some essential facts and figures about the trucking industry, the folder contains a review of the features of the "Guide" itself. It also answers many of the arguments against the use of trucks, which have been advanced by competitive transportation industries. Copies of this folder will be gladly sent to anyone requesting it.

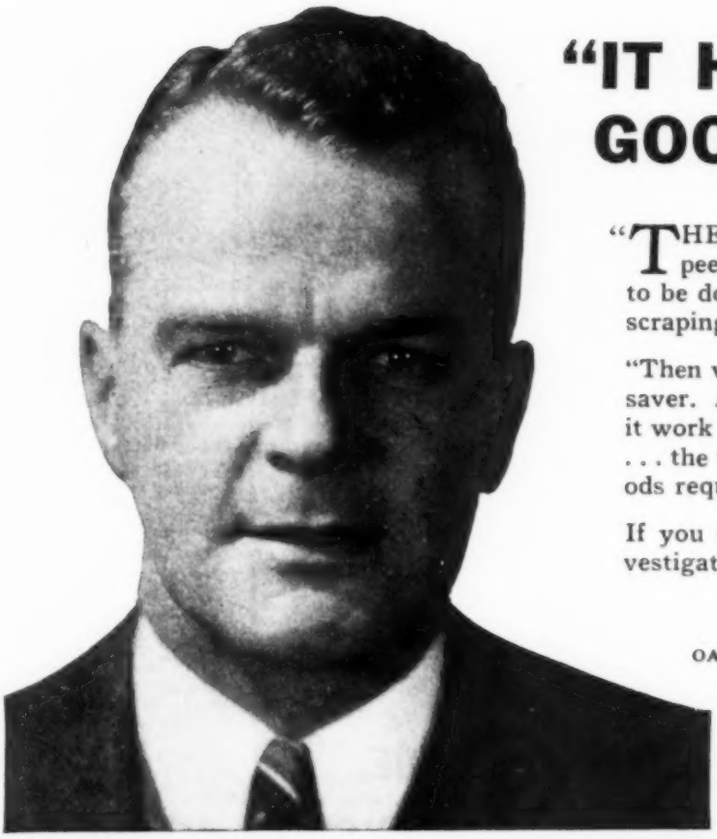


Serves Many Purposes

Canton Portable Cranes are being used to advantage in scores of ways in fleet maintenance departments. For example, when removing heavy duty steel wheels, the crane can be used to raise the vehicle and then lift and remove the wheel itself. Wherever the vehicle may be, the crane being portable, can be easily taken to it—thus saving time and money. Write for full particulars.

THE CANTON FOUNDRY & MACHINE CO.
CANTON, OHIO
New York Office—Room 704
401 Broadway

ARMORPLY
A SUPERIOR METAL FACED PLYWOOD PANEL FOR BODY CONSTRUCTION
Write for samples and prices
UNITED STATES PLYWOOD CO. INC.
603 W. 36th. ST. NEW YORK CITY



"IT HAD ME STUMPED GOOD AND PLENTY"

"THE old paint on our trucks was cracked . . . peeling . . . rust was starting. Something had to be done. We couldn't afford the time for all the scraping we thought would be necessary.

"Then we heard of Oakite Cold-Strip. It was a life-saver. All we did was spray it on truck bodies, let it work a half hour and rinse. Paint came off easily . . . the whole job taking half the time former methods required."

If you have trucks to refinish, don't wait . . . investigate Oakite Cold-Strip today. Write for details.

Manufactured only by
OAKITE PRODUCTS, INC., 52G Thames St., NEW YORK, N. Y.

OAKITE
TRADE MARK REG U.S. PAT. OFF.
Industrial Cleaning Materials and Methods

INDUSTRY'S ACCEPTED STANDARD OF CLEANING SINCE 1909

Safety Experience in Golden State Fleet

TRAFFIC accidents involving company trucks have been materially reduced by a private traffic court plan being used by one of the largest western fleet owners, the Golden State Co., Ltd., California distributors of dairy products.

Any concern running 1200 trucks throughout the State of California, 150 of them in the busy traffic of San Francisco, would have to stress careful driving. But the Golden State Company has gone beyond that. It certifies its drivers, it sets certain extra-strict standards of safety that must be maintained, and it operates its own traffic court to judge offending drivers.

The result: A high standard of safety that has been maintained since Golden State's Safety Plan went into operation in October, 1930.

Seventeen of the company's San Francisco drivers have not been involved in any kind of an accident since that date. Any driver showing a clean record for a year is given a certificate of commendation by the company.

Here is how the Golden State plan works:

The company holds a traffic court, a four-man board of review. Every driver involved in an accident must face this board, which conducts its investigation along the same lines as a court of law, with this exception; guilt or innocence in the eye of the law does not influence the company court. A driver who may be absolved of blame through a strict legal interpretation, might well be found guilty of negligence by his company, and vice versa.

Any driver found guilty in nine minor accidents (those causing less than $50 damages) loses his driving privileges. Three major accidents (resulting in personal injuries or damages exceeding $50) bring the same penalty. To earn a certificate, the driver must have an absolutely clean slate for the year. This means NO accidents. Regardless of where the blame might finally be fixed, an accident of any kind means no certificate for the driver that year.

The results of Golden State's safety plan have more than compensated the work involved. Safe driving has meant reduced insurance premiums, minimum loss of time in deliveries, low repair costs, and increased goodwill among the driving public.

●

Brewery O. K.'s Aluminum Beer Barrels

ALTHOUGH aluminum beer barrels incur a higher initial cost than either wooden or steel barrels, they more than offset that difference over a period of time, especially if used on long-distance hauls.

This is the opinion of F. C. Hoppe, purchasing agent of the Blatz Brewing Company, Milwaukee, who has become a staunch supporter of the aluminum barrel idea.

A comparison in weights shows that a one-half size empty aluminum barrel weighs 21 pounds as against 60 pounds for steel and 73 pounds for wood at the same size. It takes no mathematician to see that the savings on freight charges on hauls to distant points would more than pay for the additional cost of purchase in a very short time.

There are a number of other advantages, Mr. Hoppe points out, which make the aluminum barrel increasingly popular. They require no pitching, are more easily cleaned, are easier to handle, and provide a much better appearance.

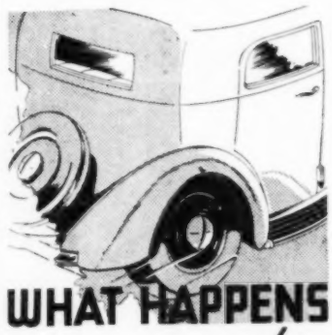
PRESERVATION IS INSTINCTIVE

Hercules held the heavens while Atlas went in quest of the Golden Apples for him. Returning, the task effected, Atlas was loathe to take up his burden again but Hercules managed to give the heavens back to him, on the pretext that he wanted relief for only a moment, while he cushioned his shoulders.

Colloidal graphite may be called upon to shoulder any lubrication burden and used with a good oil insures protection. Now available are many very excellent auxiliary lubricants which contain "dag" Brand colloidal graphite. ❖ These are invaluable when used in new and rebuilt engines during the run-in period. Forming a smooth, lubricating film of graphite on the friction parts, these lubricants protect against metal-to-metal contact should oil film rupture occur. For a complete job, use of both a colloidal-graphited crankcase and upper cylinder oil is recommended. This treatment on new engines particularly will carry on the good work of many large engine manufacturers who set-up their mechanisms at the factory with this material. ❖ Send for our Technical Bulletin 112B describing the value of Acheson colloidal graphite in run-in operations.

REG. U.S. PAT. OFF. dag COLLOIDAL PRODUCTS Acheson

ACHESON COLLOIDS CORPORATION
FOUNDED [1908] AS ACHESON OILDAG COMPANY
PORT HURON MICHIGAN



WHAT HAPPENS *when the wheels turn?*

Certainly conditions are different with the motor working under load than when the motor is running at the same R.P.M. idling on the shop floor and consuming but a fraction of the gas. If maximum economy and power are to be expected on the road adjustments must be based upon exhaust gas analyses . . . taken on the road. The Cambridge Exhaust Gas Tester is built to withstand road shocks and retain its accuracy. The pointer does not waver or jump so that the indication is as readable on the road as it is in the shop. Send for Booklet 144-E.

Cambridge Instrument Co., Inc.
3732 Grand Central Terminal
New York City

CAMBRIDGE EXHAUST GAS TESTER

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11" x 8" x 8"—Wt. 29 lbs.

INCREASE SHIPPING FLOOR CAPACITY

MAKE EXTRA TRIPS WITH TRUCKS YOU HAVE NOW

~ BY USING ~

"ROLOFF" DEMOUNTABLE BODIES

ASK US HOW

ROLOFF, INC.
KENDALL SQUARE
CAMBRIDGE: MASS.

ORDER A TRIAL CAN

CHANGE YOUR OIL ONLY ½ AS OFTEN

GLAZOIL, added to your present motor oil, will halve your oil costs—you change ½ as often. GLAZOIL cuts repair bills too—"runs-in" new motors properly and lengthens life of old motors. Won't burn—won't freeze—won't break down. Keeps all wearing surfaces constantly "wet" with lubricant. Write us today for complete data. The Glazoil Products Co., 1614 Coutant Ave., Cleveland, Ohio.

Glazoil
COLLOIDAL GRAPHITE
REDUCES FRICTION—PROLONGS MOTOR LIFE

Mileage Tax Bill Offered in House

A BILL imposing an excise tax on motor trucks and buses was introduced in the House recently by Representative Patrick J. Boland, of Scranton, Pa.

The bill, known officially as H. R. 3625, would affect common carriers engaged in interstate commerce.

The taxes would be as follows:

Trucks of 1½ ton capacity or less, 2 cents per mile; over 1½ tons capacity, 3 cents per mile; buses with seating capacity of 10 passengers or less, 2 cents per mile; over 10 passengers, 3 cents per mile.

Statements showing the mileage for the preceding year would be filed with the Commissioner of Internal Revenue on or before February 1. The taxes would be due when the report is filed. Delinquents would be assessed 1 per cent per month penalty.

Failure to pay, keep records, or supply information to the Commissioner would be liable to a fine of not more than $10,000, or imprisonment for one year, or both, together with costs of prosecution.

●

Dampen Enthusiasm for Port-of-Entry Law

THE report on actual operation of the Kansas Port-of-Entry Law, based upon a field study made by a member of the National Highway Users Conference staff, is attracting interest of the press, officials, commercial groups and others to whom it has been distributed.

The factual and dignified character of the presentation is seen as a major factor in this command of attention.

Contents of the report are credited with having played a part in dampening "port-of-entry" enthusiasm which was developing at the Western Motor Vehicle Conference, held recently at Phoenix, Arizona. The Conference merely adopted a resolution suggesting further study of the subject.

Editorial comment in the daily press concerning the report reveals an awakening to the serious implications held by the port of entry proposals. One commentator suggested use of this system was comparable to halting railroad trains at boundaries of states.

Extent of interest aroused among state officials and civic organizations by the report is indicated by scores of letters received at Conference headquarters. These letters, coming from virtually all states, almost invariably contain statements showing the document is being made the object of close study.

●

Lest the Legislators Forget:

WITH legislatures soon to meet in forty-four states, in most of which movements for diversion of highway funds are under way, the importance of centering attention upon the Hayden-Cartwright Act cannot be exaggerated.

The law provides "that states, to be eligible for full participation in Federal aid, must continue to use for roads at least whatever portion of their revenues and other taxes on motor vehicles is now authorized by law to be expended for highway purposes," to quote the statement issued by the President when he signed the measure.

The section of the law containing that provision is prefaced with this declaration:

"Since it is unfair and unjust to tax motor vehicle transportation unless the proceeds of such taxation are

Obey the laws
Protect your fleets
WITH
CASCO
REG. U.S. PAT. OFF.
Cataphote Reflectors

Attaching Bracket

CASCO NO. 5
RED—AMBER
GREEN—WHITE

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• FEATURES

- Powerful beam of reflection with an extreme range of 800 feet. Average range 600 feet.
- Visible at any angle up to 63° (200% in excess of S. A. E. requirements).
- Reflecting unit silvered directly on glass and sealed against dust and moisture, thereby increasing the life of the unit.
- Equipped with Genuine LIBBEY one-piece Captaphote, the same high-grade glass as used on state highways and railroads. No buttons to get loose or out of focus.
- Lens securely encased in rigid grille-type pressed metal housing, affording protection against breakage. Lens cannot work loose.
- Universal bracket makes any type of installation a matter of minutes.

APPROVED TYPE

CASCO Cataphote Reflectors are of the type approved to meet all reflector laws in all states. The most practical and efficient reflecting device on the market. Lens moulded in one unit. Strong, all-metal housing to withstand hard usage. Four holes with spun rivets to protect mounting. Can be applied direct on flat surface, or by use of bracket.

Made in Red, Amber, Green and White to comply with various state laws. Always specify color when ordering, and whether black enamel or chrome frame.

Outside diameter, 5" Lens diameter, 4"
Shipping weight, 1¼ lbs.

Packed in individual display boxes. Bracket supplied with each unit.

Prices—No. 5 Black Frame $1.50
No. 5C Chrome Frame $2.00

Colors—Red, Amber, Green or White

Order through your wholesale house

CASCO PRODUCTS CORP.
General Motors Bldg., Detroit BRIDGEPORT, CONN.

MODEL 15 UTILITY

Six Wheel Attachment for Trucks of Ford and Chevrolet Capacities

Is illustrated here as shipped completely assembled, with frame extension. Ready to slip extension over the truck frame, connect up brake levers and spring shackles, move spare tire carrier assembly to the rear, and drive away as a proven six wheel truck.

A Model Available for Every Size Truck

Utility was First in the United States to develop 6 wheel attachments for 4 wheel trucks. Now has distributors in all principal cities. Write for special folders. Factory stock also carried in New York City.

UTILITY TRAILER MANUFACTURING CO.
Box 1407 Arcade Annex **Los Angeles, California**

Its the grid construction of

SPONGEX

(Sponge Rubber)

Honeycomb Cushions

That gives them superior riding qualities

Our folder—"A New Way to Ride on Rubber" tells all about these long wearing, economical seat cushions—Write for it today.

THE SPONGE RUBBER PRODUCTS CO.
Derby, Connecticut

$5.95 for Your Old BATTERY CHARGER

NOW, you can trade in your old, inefficient and costly-to-maintain battery charger—*and cut your battery charging costs 30c to 50c per charge!*

ONLY ---- *The New* Hi-Rate HOMCHARGER

charges a battery overnight . . . and for a NICKEL. The FASTEST—MOST EFFICIENT—MOST ECONOMICAL. No expensive bulbs . . . no "dry" units. Only ONE wearing part, replaceable for $1.00. No radio interference. Trade in your old charger NOW. Write today for special offer and FREE booklet.

THE AUTOMATIC ELECTRICAL DEVICES CO.
DEPT. 24 324 E. 3rd STREET CINCINNATI, O.

applied to the construction, improvement or maintenance of highways . . . ."

A pamphlet dealing with this subject has been prepared by the National Highway Users Conference. Containing excerpts from newspaper and magazine editorials concerning the Hayden-Cartwright Act and that law's penalty provision, it will prove adaptable for use in state anti-diversion campaigns.

•

Truck Committee Recommends "Caution Plate"

EFFORTS toward further prevention of truck accidents were advanced recently by the Motor Truck Committee of the Automobile Manufacturers Association, in recommending that truck manufacturers install a "caution plate" in all motor trucks, warning drivers of the need for care and courtesy on the road.

The Committee urged that manufacturers place the caution plate in a conspicuous place on the dash, to serve as a constant reminder to drivers of the necessity for alertness in handling vehicles and consideration of other highway users.

The suggested wording for the caution plate is—"*Warning. Observe all traffic regulations. Drive well on your side of the road. Avoid danger. Be courteous to other highway users.*"

"The manufacturers are fully aware of the need for improving vehicle equipment to prevent accidents," the Committee declared. "Frequent conferences of motor truck engineers are held with that end in view. Improvement in equipment and driver safety campaigns has been responsible for reducing serious truck accidents over a period covering the past seven years, while truck registrations have increased.

"The fact that motor trucks have become an indispensable facility of transportation makes it imperative that accidents in which they are involved are kept at a minimum, and that there be courteous relationship between motor truck operators and other highway users.

"Research in factory laboratories, recommendations of state highway engineers and educational campaigns have eliminated much undesirable equipment from highways and many inefficient drivers have been removed from behind steering wheels.

"Fleet operators are doing their part, and a program of safety education planned by the American Trucking Associations and affiliated groups is expected to further prevent accidents.

"Enforcement of existing state regulations covering dimensions, speeds and operation of vehicles is necessary for the success of these safety programs.

"Results attained by a Portland (Oregon) fleet owner are typical of what can be accomplished by safety-first programs. The equipment of this company, which instituted a driving training system several years ago, has traveled 750,852 miles without an accident.

"Numerous operators have similar systems in which each employe is trained to be 'safety-conscious' from the first day of employment and is required to pass physical tests and mental examinations on traffic regulations and is constantly checked by safety inspectors.

"This Committee is considering further improvements in signalling devices and other equipment which may be recommended to manufacturers. Members plan to confer with state highway engineers on the relationship between vehicle design and road structures with a view to easing traffic movement and protecting highway structures."

The members of the Motor Truck Committee of the

Association are: A. J. Brosseau, (Mack) Chairman; J. D. Burke, (Dodge); T. R. Dahl, (White); F. E. Evans, (Chevrolet); W. F. McAfee, (International Harvester); R. P. Page, Jr., (Autocar); E. G. Poxson, (Reo); M. L. Pulcher, (Federal) and P. W. Seiler, (G.M.T.).

●

Alloy-Iron Cylinder Liners Add to Engine Life

THE operating costs of GMC truck engines have been materially reduced by the use of hardened, inserted, alloy-iron cylinder-liners, according to W. Paul Eddy, Jr., metallurgist of the General Motors Truck Corp., in a paper delivered before the recent American Foundrymen's Association Annual Convention.

"The new engines in which such liners are used not only require but one-third as many cylinder reconditionings as the old, but also use the same cylinder blocks throughout their life," he said.

"The life of a cylinder block between reconditionings varies considerably, depending on operating conditions and maintenance practices. Type of operation (city or cross-country), type of roads, speeds, lubrication policies, kind of fuel, corrosive conditions in combustion chambers, and maintenance of efficiencies of air cleaners, oil filters, oil coolers and engine cooling systems are some of the factors that influence engine life.

"In spite of these variables, the records provided fairly definite data. The old style cylinder, under such varying conditions, ran 25,000 to 75,000 miles between reconditionings, whereas the new cylinders, although operating in general on faster schedules, run 75,000 to 200,000 miles. Furthermore, in many operations which are more severe, it is merely necessary, after 75,000 to 125,000 miles, to install new standard size piston rings, the engine then being run 50,000 to 75,000 miles further before cylinder grinding and oversize pistons and rings are required. Tests on many liners after long service have shown that no measurable drop in hardness occurs during operation.

"The original adoption of alloyed iron cylinder liners by the General Motors Truck Corporation was a result of experiments conducted with ten different gray iron compositions, including nickel, nickel-chromium, manganese-nickel-chromium, and nickel-molybdenum, with varying amounts of alloying elements and total carbon, and with combined carbon contents from 0.50% to 1.80% as cast.

"The primary requirement was, of course, high hardness. It was also decided, because of the inherent fragility of large thin-walled cast iron cylinder liners as compared with many other automotive parts, and because liners must be handled and installed by garages as well as by the factory, that little if any sacrifice in strength could be tolerated. Soundness of castings was essential. Machinability was important from the standpoint of cost. Freedom from distortion during heat treatment and ability to duplicate results consistently were also factors."

●

Governors DO Provide Operating Economies

HOW many fleet owners or managers realize just how much more it costs to operate at high rates of speed than at a moderate rate? An enlightening story on the achievement of marked economy by deliberately limiting the speed of their vehicles is revealed in the experience of an Ohio corporation. This concern reaches the conclusion that commercial vehicle owners should demand of automobile manfacturers the production of

● *Send this letter, on your company stationery, to The Hygienic Products Company, Canton, Ohio. There is no obligation. It will be the means of saving you maintenance money.*

take a letter!

Gentlemen:
Please send me a fair trial of Sani-Flush to clean out radiators of cars or trucks in our fleet.
This does not obligate me or my company in any way.
Very truly,
(Signature)

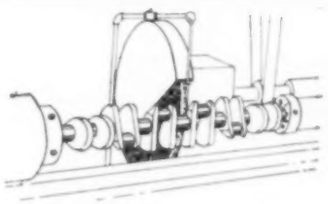
● Dirty or clogged radiators in salesmen's cars or trucks are a costly neglect. They rob power. They overheat motors. Cause expensive repairs.

Cleaning a radiator *thoroughly* is neither difficult nor expensive. Sani-Flush does it safely and quickly.

Try Sani-Flush at our expense. You can buy it in 25-pound pails that bring the cost-per-cleaning down to 6 cents a car. 15 cents for the largest truck or tractor.

RADIATORS SHOULD BE CLEANED REGULARLY. ESPECIALLY AT THE TIME WHEN ANTI-FREEZE IS BEING DRAINED. NRA

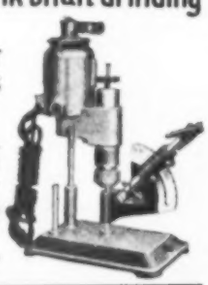
MASTERCRAFT
TRUCK BODIES
Production
and
Custom Built
Body Equipment
Vocationally Designed
LUCE MANUFACTURING CO.
Lansing, Michigan



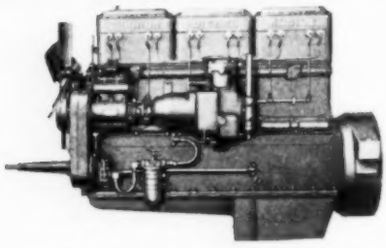
Precision Grinding has always been done on the Principle of
POINT CONTACT
—as Crank Shaft Grinding

ECCENTRIC VALVE SEAT GRINDING IS POINT CONTACT GRINDING.

That's why valve seats of ANY metal can be precision ground with the new, low priced Model E-J Grinder. See it at your Jobber's or write for literature. Comes with Diamond Dresser, less Pilots and Grinding Wheels, in metal case at only **$89**



THE HALL MFG. CO., 1620 Woodland Ave. TOLEDO, OHIO



CUMMINS
DIESEL ENGINES
For Lowest-Cost Trucking

PACIFIC TANK LINES, Los Angeles, is an example of the hundreds of heavy-duty truck operators who have adopted CUMMINS Diesel power. This operator's fleet is 100% CUMMINS Diesel-equipped.

Twenty-one 6-wheel trucks, pulling 6-wheel trailers, each haul 6,500 gallons of gasoline. Some of these units operate between Los Angeles and Phoenix, Arizona; some go into Death Valley; others into the Mojave Desert; others over the treacherous Ridge Route into Bakersfield and the San Joaquin Valley. More than 50% of fuel gallonage is saved over the use of gasoline engines and the fire hazard of gasoline engines is eliminated.

CUMMINS ENGINE CO., COLUMBUS, IND.

—The Leader in Diesel Engineering Advancement

SALES AND SERVICE FROM COAST TO COAST

FORD HAND BOOK

FORD MODELS V-8 B and A CARS

By VICTOR W. PAGÉ

Compare with anything you have or anything you know about. 715 pages; 319 illustrations for $2.50.

This work has been prepared with the full co-operation of the factory service department, and is illustrated with clear and distinctive drawings showing all mechanical parts with the components indicated by plain, descriptive lettering. The construction and operation of the important parts of the chassis and power plant is made so clear that even a novice can derive instruction and benefit from the text and illustrations.

The book is written in simple, non-technical language, and it is specially valuable to Ford owners who maintain and repair their own cars. The general repairman will find many short-cuts explained for repairing all parts of the car, and various special tools and fixtures are described in detail to facilitate the work. **The latest syncromesh transmission is explained in detail, also all details of the V8 engine.**

Suggestions are given for driving and upkeep, trouble shooting on the road and in the shop, power plant overhauling, systematic location of defects in the carburetion, cooling or ignition systems, also complete lubricating instructions and description of **new downdraft carburetor and distinctive V8 ignition system.**

This Book May Be Obtained from

The Ferguson Pub. Co., 90 West St., New York City

vehicles with a lower top speed, which will be safer as well as more economical.

While automobile manufacturers were lying awake nights trying to put an extra couple of miles of top speed on motor vehicles, this company was expending $12 or $13 per vehicle to install governors to counter this activity. At the insistence of the company, the manufacturers adapted their productions to the specified requirements, one of which was that the top-speed limit of the vehicles be 50 miles an hour.

One of the principal features of the scheme was a governor which prevented the throttle from opening more than 30 degrees. An appreciable increase in fuel economy was immediately obtained. Other changes were then made to bring about the most efficient operation, such as increasing the compression ratio, advancing the timing and installing smaller carburetor jets.

The company reports these results: The fuel economy of the automobiles was raised from an average of 12.27 miles per gallon to 16.60, representing a saving of about 35 per cent in fuel bills. Tire mileage increased fully 50 per cent. Brake wear was cut approximately in half. Rear axle trouble was practically put out of the picture. Clutch and transmission difficulties were reduced to a point where they are negligible. The garage mechanical force was reduced 15 per cent. Condition of a large number of governed automobiles after a year's operation indicated that the economic life of the automobile would be increased at least one-third.

Drivers of the vehicles quite naturally were reported as preferring to operate those with maximum acceleration and capable of the higher speeds. Nevertheless, officials declared that they have been unable to find a single instance in which the reduction in speed actually interfered with the conduct of the business.

Operation of a motor vehicle is more difficult in the fall and winter, but motor vehicle operators nowadays know what they are up against and must adjust their driving to meet the seasonal hazards. Drivers are not justified in holding adverse weather conditions responsible for their mishaps. During these winter months, we urge fleet operators to check up on their motor vehicle equipment, especially brakes, tires, headlights and windshield wipers.

●

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●

Gas Tax Averaged 38 Per Cent Last Year

STATE and federal gasoline taxes in 1934 represented an average retail sales tax of 38.12 per cent, a recent study of prices and taxes in 50 cities made by the American Petroleum Industries Committee has shown.

Gasoline prices throughout the year averaged 13.64c per gallon, while state and federal taxes averaged 5.2c. The average cost of gasoline (price plus tax) was 18.84c per gallon.

The highest average retail price reported during the year was 14.31c per gallon on June 1, while the lowest was 11.72c per gallon on November 1. The highest cost

was 19.52c per gallon, also on June 1, and the lowest 16.93c, on November 1.

First reports of gasoline prices and taxes in 1935 revealed the average retail price on January 1 as 12.78c per gallon, the average tax as 5.22c, and the average cost as 18c.

●

Aluminum in the Transportation Field

(*Continued from page* 38)

Metal furniture is displacing the conventional wood construction in many places, and aluminum designs occupy a prominent position in this field. Welded joints are used on aluminum furniture to provide strength to offset the rough usage such as furniture receives, particularly in public places, and to provide sanitary and smooth construction. A heat treated alloy, "51S", is generally used for the base material as it has the required structural properties and is readily weldable.

It is apparent from the foregoing that the welding torch is one of the most useful tools in assembling aluminum parts. Developments in the future will see wider fields of application for these alloys, and the indications are that the development of the welding processes will be a very important factor in establishing usefulness of these materials in the industrial picture.

●

Truck Industry's 1934 Accomplishments

(*Continued from page* 40)

the number of motor vehicles registered.

"The imposition of unusually high registration fees on heavy vehicles, particularly trucks, in a few States, combined with high gasoline taxes, has apparently discouraged the registration of such vehicles, with the result that the high rates were productive of little revenue in 1932.

"Comparison of the number of heavy trucks registered in certain States with the existing mileage of high-type roads and particularly of portland cement concrete roads, in the same States, leads to the conclusion that such roads have been built primarily in response to the demands of traffic in general, rather than specifically to support heavy loads."

Several states have already had disappointing experiences with diminishing revenues due to their excessive taxation of motor vehicles. At least nineteen states have decreased registration fees since 1932.

Educational programs on the effect of vehicle use on highways have paved the way for more reasonable limitations on vehicle sizes and weights. The American Association of State Highway Officials has produced sound engineering arguments to substantiate their recommendations for size and weight limitations which they have urged for adoption by all states. If written into state laws, the recommended standards will put highway transportation on a basis befitting present day conditions. Many of the existing state laws are still based on highway transportation as it existed in the time of solid tires.

Until such provisions in laws are changed, the public will be in a position of denying itself of a fair return on its highway investment. Flexible and low cost movement of commodities over public roads depends on reasonable laws.

It is encouraging to note that the public has further

(*Please turn to page* 64)

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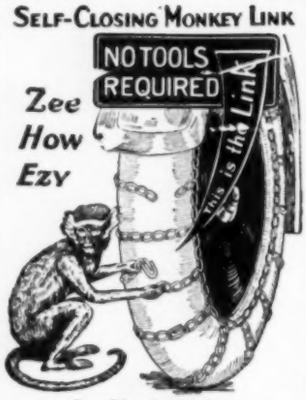

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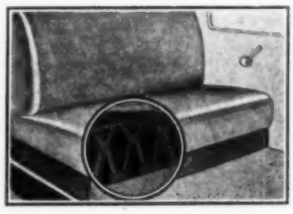

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exerted its need for motor transportation under conditions far from desirable. This indicates further expansion of motor transportation operations when motor vehicle taxation, size restrictions and other regulatory provisions are made to conform with conditions as they exist today.

●

Comment on News Fleet Analysis

(*Continued from page* 34)

Depreciation, particularly under the enforcement of N.R.A. codes, is more a matter of "year" than "mechanical condition," insofar as trade-in value is concerned.

(3) Insurance and Licenses: (a) The carrying of "collision insurance" is somewhat in the nature of a luxury, as the cost of such insurance is greater (usually) than the claims collected, and most fleets do not insure for damage to their own equipment for that reason.

(b) If there are any slack periods when cars could be placed in dead storage, a reduction in premium might possibly be secured on that basis.

(c) If the dead storage period happened to coincide with license fee reduction periods, a saving of 25, 50 or 75% of annual license expense on these cars could be made by not licensing until actually needed for service.

(4) Maintenance: (a) It is usually found economical in a fleet of 25 or more cars to delegate washing to a trained washer, leaving to chauffeurs that work for which they are actually fitted.

(b) The author seems to classify repairs under one heading. The proper thing to do is to break it down into two headings. That of "Auto Parts and Materials" is to be charged to the individual cars. That of "Miscellaneous Supplies, Tools and Equipment" should be charged to overhead.

(5) Capacity: While the author's idea of keeping away from over-capacity is good—he fails to take cognizance of the fact that frequent stopping and starting (a dynamic load) has as much effect in producing wear-and-tear as a much heavier payload (static load). It may be easily experienced that a 1-ton truck on "route work" will move ½-ton loads *cheaper* than a ½-ton truck in the same service, for just that reason.

(6) Mileage Records: (a) The recommended records are minute—almost to a fault—yet on mileage, which is the basis of all comparisons, the author seems to work principally with monthly or yearly figures. Actually, for efficient control, it is necessary to work with daily, weekly, monthly, etc., mileage figures.

(b) The use of hub odometers, instead of speedometers for record work, will greatly obviate the "out of order" conditions described. Daily check of readings will detect inaccuracies and get them in line before any harm is done.

(c) By adding *proven* daily mileages, the subsequent figures will not contain errors due to incorrect readings, faulty odometers, changed instruments, etc.

(7) Trouble Sheets: There should be two forms, as follows: A Driver's Report form covering any mechanical troubles encountered during the day. Also a Shop Foreman's Report of any road failures. This is essential in determining how well maintenance is being kept in control; also in checking the dependability of certain cars or makes. The proposed system seems to call for too many loose sheets in the garage, instead of concentrating *more* records on a single sheet.

(8) Tire Records: The tire record should be twofold, on a basis of records for each car and for each individual tire. Unless a detailed record is kept, then

none at all should be attempted, as no "half portions" are of any value, due to the many changes and variables involved.

(EDITOR'S NOTE: We are glad indeed to have the above constructive criticism of Mr. E. J. Gribbons' analysis. We have noted quite a number of requests for extra copies of the issues containing these articles, and would welcome further comment from other fleet operators. Brother Fischer will be ticked to hear from you, so lets have some letters, if you please.

●

What Mechanical Safety Devices?

(*Continued from page* 32)

lights and assuring that electric units on trailers will function properly."

Shatter-Proof Glass: The universal answer was that shatter-proof glass does not reduce or prevent accidents, but its use has certainly reduced the severity of results of accidents. As to the factor of deterioration sufficiently to mar the driver's vision, opinions were divided. However, another questionnaire said: "Shatter-proof glass properly sealed at time of installation does not deteriorate to any great extent."

Special Painting of Rear End of Car: One very large bus operator said: "We feel that marker lights and stop and tail lights are sufficient for the rear end of a bus." Another said: "Any painting scheme that would make equipment conspicuous is advisable, as it calls the attention of the approaching motorist to the vehicle." But another said: "Like reflectors, it depends on the efficiency of head lights of approaching vehicles."

Governors: To the question "Will the limiting of speed materially prevent accidents" several said the speed should be governed by the nature of the load, capacity of truck or car, and length of haul. The speed limits generally recommended were from twenty-five to forty miles per hour.

First Aid Kits: Under what conditions should these be furnished the drivers? One bus operator said that all drivers are required to carry a first aid kit. Generally speaking, however, the answers reflect the belief that first aid kits are not necessary. The only conditions under which they would be recommended are where the driver has a rural route or drives a transport truck, or is on the road over night when first aid attention would be hard to obtain. It was indicated, however, that all work trucks should be equipped with first aid material. It was also recommended that where a kit is furnished, the driver should receive proper instruction in its use.

Fire Extinguishers: Most of the opinions expressed were that where a driver covers an isolated route in sparsely settled territories where assistance would not be readily had, or when valuable loads are carried, this equipment might be justified—although most of the questionnaires, including those from oil companies, reported that the frequency of fires would not justify the installation. It is a general practice of the oil companies to provide extinguishers for most of their trucks; as a matter of fact, in many of the larger cities this is required by ordinance.

Although this ends our very interesting list of questions and answers, it has seemed to me that spare tires and parts, as well as proper tools for quick minor repair jobs, should also be mentioned. Many breakdowns and repairs of flat tires have prolonged the hazard on the highway because of lack of these essentials.

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